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Journal of Electricity entered as second class matter February 17, 1921, at the post office at San Francisco, under the Act of Congress, March 3, 1879.
Published the 1st and 15th of each month, at 883 Mission Street, San Francisco, California.

OCT -7 1924

©CIB626957

# Journal of Electricity

A McGraw-Hill Publication
Published Semi-Monthly
Established 1887

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**McGRAW-HILL COMPANY OF CALIFORNIA — 883 Mission St. — SAN FRANCISCO**
Northwest Office: 1206 Spalding Building, Portland, Ore.
PUBLISHERS OF Journal of Electricity

JAMES H. McGRAW, PRESIDENT
C. T. HUTCHINSON, VICE-PRES. & GEN. MGR.
C. M. LINDSAY, VICE-PRES. & TREAS.

WASHINGTON, Colorado Building
CHICAGO, Old Colony Building
PHILADELPHIA, Real Estate Trust Building
CLEVELAND, Leader-News Building
ST. LOUIS, Star Building
NEW YORK, Tenth Ave. at 36th St.

Subscription rates in United States, Canada, Mexico, Porto Rico, U. S. Possessions, Argentina, Bolivia, Brazil, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, Nicaragua, Panama, Guatemala, Paraguay, Peru, Honduras, Salvador, Uruguay, and Spain, $2.00 per year, 2 years $3.00. Elsewhere $3.00 Gold (13 Shillings). Single copy, 25c. When change of address is required, both old and new addresses must be given. Notice must be received two weeks before change takes place.

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By McGraw-Hill Company of California

Entered as second-class matter Feb. 17, 1921, at the Post Office at San Francisco, California, under Act of March 3, 1879.

Member Audit Bureau of Circulation

Printed in U. S. A.

McGRAW-HILL CO., Inc., New York
Publishers of
American Machinist—European Edition (*Published in London*)
Electrical Retailing — Industrial Engineer (*Published in Chicago*)
Chemical and Metallurgical Engineering
American Machinist — Ingenieria Internacional
Electrical World — Electric Railway Journal
Engineering and Mining Journal-Press
Bus Transportation — Engineering News-Record
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## *A Directory Service For the Radio Industry*

IN three short years, the radio industry has grown so rapidly that today it includes over 3,000 manufacturers, nearly a thousand jobbers and manufacturer's agents, many thousand retailers and some 500 broadcasting stations. From annual sales of $5,000,000 in 1920, its output in receiving apparatus alone has increased to estimated sales of nearly $300,000,000 in 1924.

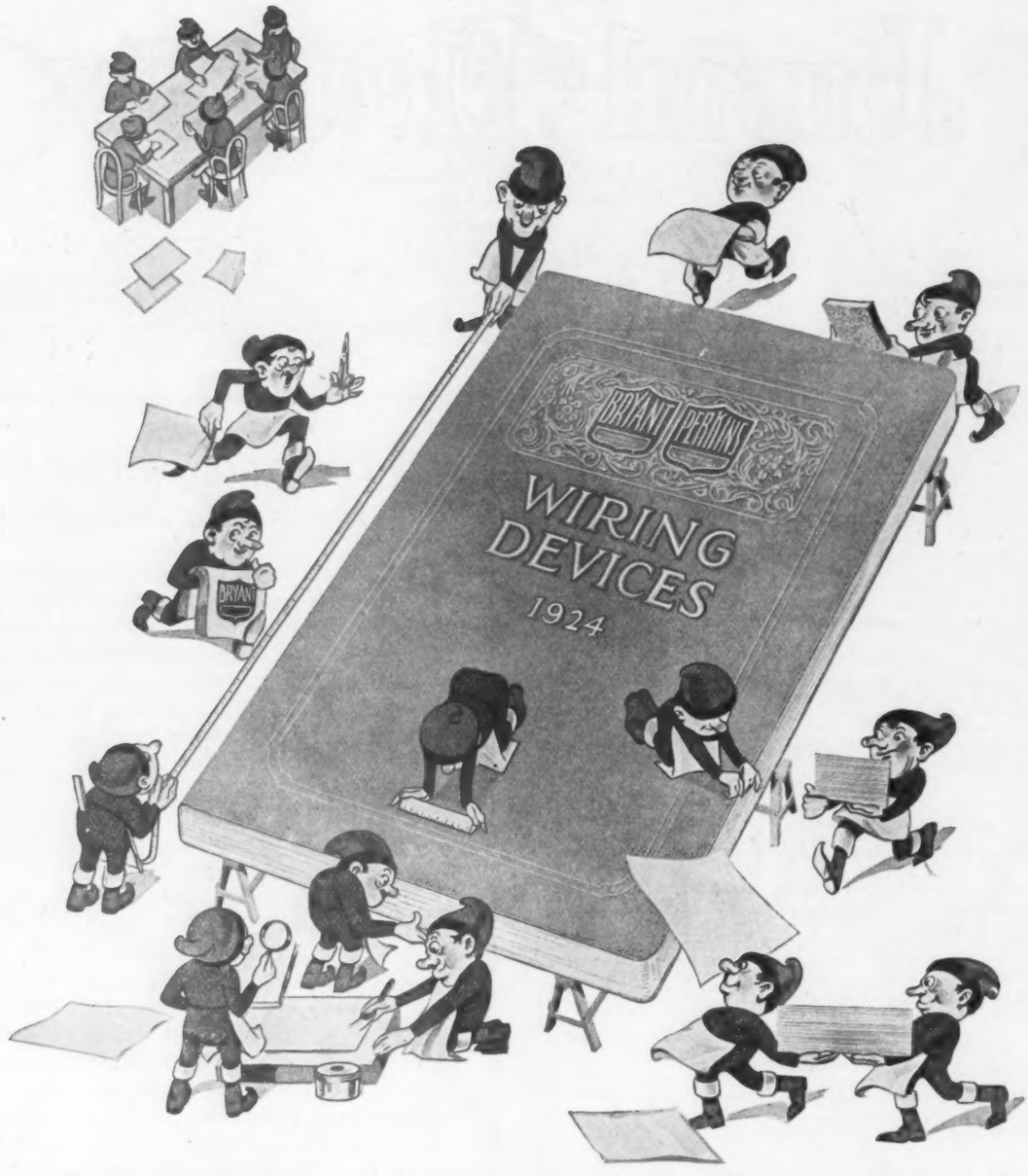
Naturally an industry of such size needs buying and selling information, particularly because the industry is so new.

To give the radio buyer and seller the answers to all their vital questions, the McGraw-Hill Company announces the Radio Trade Directory and the Directory's List Service. As the world's largest publisher of engineering, industrial and business publications, including such magazines as Journal of Electricity, Electrical Merchandising, Electrical World, Electrical Retailing, and eleven others, the McGraw-Hill Company has exceptional facilities to compile and publish such a Directory.

In the Directory will be found classified lists of all the American manufacturers of everything used in the construction, operation and maintenance of radio equipment, both transmitting and receiving—makers of raw and semi-finished materials, parts, accessories, supplies and machinery and tools peculiar to the industry. The Directory will be issued in November and quarterly thereafter.

The List Service will provide authentic data on the wholesalers of the country as well as complete lists of the radio retail trade.

The work of compiling the Directory and the List Service is in charge of J. C. Cortelyou, formerly editor and business manager of the Automobile Trade Directory.

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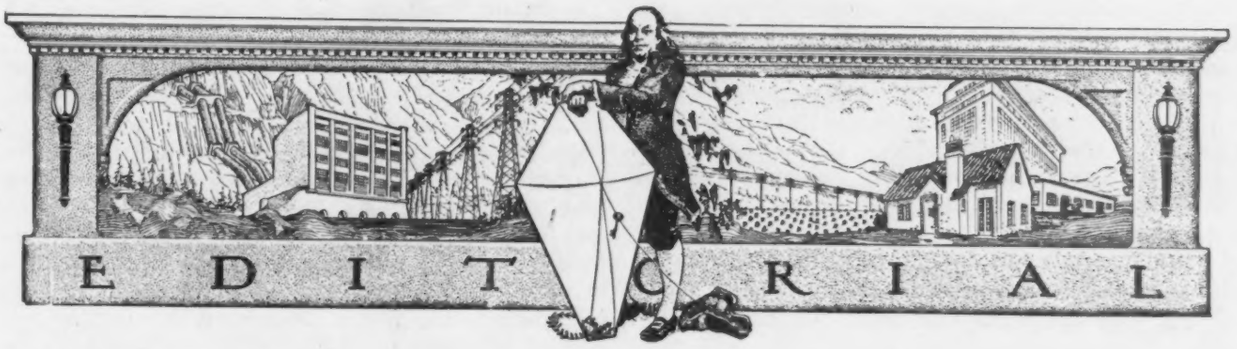



### Colorado River Again
### Arizona's Political Football

THE much discussed, argued and debated Colorado River Compact seemingly died because Arizona insisted in mixing the settlement of the Colorado River question with politics. Ratified by six of the seven states, the compact met its Waterloo in Arizona because that state felt that its interests were not fully protected. Now Arizona politics has reopened the entire question of the development and control of this mighty Western river. More than that, there is a bare chance that the question will be settled and the compact at last passed up to Congress for its approval.

Elsewhere in this issue is a news item from Phoenix setting forth the results of the Arizona primary, in which a candidate who advocates the immediate passage of the compact by the state legislature was nominated for the gubernatorial chair. This new candidate qualifies his support of the compact with the statement that he believes legislation should be passed which will assure Arizona of its just share of the waters of the river despite prior development in California and Mexico. He also holds that provisions should be made for levying a state tax on all hydroelectric energy produced wholly or in part within the state.

Irrespective of the pre-election promises of either of the gubernatorial candidates, the present talk regarding the Colorado is helpful in that it again emphasizes the necessity of an early settlement of the entire question. Before any development can be undertaken there must be an agreement between the several states affected,—either the present compact must be ratified or a new one suitable to Arizona drawn up. It is lamentable that there should be so much political quibbling over such a highly economic question. Within five years Colorado River power will be needed in the Western power markets. Engineers estimate that five years will be needed to complete any of the projects suggested. When will development start?

---

### The Forthcoming Convention of the A.I.E.E. at Pasadena

DOUBT has been expressed in some quarters as to whether the registration at the forthcoming Pacific Coast convention of the American Institute of Electrical Engineers at Pasadena, Calif., Oct. 13-19, will reach the highly satisfactory figure set by the convention a year ago at Del Monte. Because this has been a dull year for some of the utilities and because others are engaged in developments which necessitate the full attention of their engineers, there is fear that the Pacific Coast will not give the convention the full measure of support that it merits.

Each year the Pacific Coast convention of the Institute has increased in importance until today it is fully as momentous as the national meeting of the organization. This year is no exception, for the program contains many highly important papers. In addition sessions will be held at the recently completed million-volt laboratory of the California Institute of Technology and at the Norman Bridge Laboratory of Physics.

Executives of the Western power companies should give the same support to the Institute which they give to the N.E.L.A., because the Institute is to the engineer what N.E.L.A. is to the commercial man. National support has been assured, for a special party will attend from the East. The expense of sending men to the convention will be amply repaid in the information that the delegates bring home from the papers and discussions.

---

### Anyway—
### May the Best Man Win

ELECTION day, this coming November, marks a critical period in our history. Nationally, 1924 has been a year of great achievement. First came the adoption of the Dawes plan for the reorganization of the finances of continental Europe and the determination of a definite plan for the solution of the German reparations problem. This in itself is the greatest event since the signing of the Armistice.

Thus, the European markets will again be thrown open to American raw materials and manufactured goods, and at the same time will bring about sharp competition in our domestic markets with German-made goods, that is, such of them as can breast the tariff wall and still compete as to price and quality.

Politically, we have the spectacle of two gentlemen of acknowledged and proved ability, whose record is written large upon the pages of history, and one radical-socialistic candidate whose program is destructive of our most cherished traditions—all seeking at the hands of the people the highest office in the land.

It shows the weakness of our old party designations that pit two men of similar characteristics against each other to the possible benefit of a third candidate of a diametrically opposite type. It seems timely to adopt a new line-up, in our political parties, that will in their names and aspirations be more appropriate to the issues of today. "Republican" and "Democrat" are terms that are civil war relics of some sixty years' standing, and their use only serves to keep alive issues that ought to have been decently interred many years ago.

Anyway—may the best man win.

---

### And We May Have Electragists in California

THINGS are moving—electrically. When L. W. Davis, of the Association of Electragists, International, came West and spread the gospel of the Electragists throughout the length and breadth of the Pacific Coast, he did what is called in the vernacular of the street a good job. The San Francisco Bay contingent of the contractor-dealers has taken kindly to the idea, and a campaign is about to be undertaken to organize a state-wide chapter of the Electragists, affiliated with the national body, of course.

What is an Electragist? Perhaps as good an answer as any might be given to the effect that an Electragist is a contractor who knows his business and is reliable, nay more, one who has a conscience with respect to what ought to be done and how it ought to be done. The term "Electragist" is copyrighted. Its use by individuals may be controlled by the Association of Electragists, International, so that it will not be applied promiscuously to anyone who has no qualification other than being willing to pay his dues. More than that, the license to use it may be withdrawn, if the holder does not live up to the established quality standards of work.

The Electragist idea is distinctly a constructive movement. The term itself appeals strongly to the imagination, and if it is properly advertised among those who patronize the contractor, and if proper discrimination is exercised in granting licenses to use it, it may, conceivably, mark a new era in the annals of the electrical contracting profession.

---

### Be Careful—the Water and Power Act Needs Only a Majority Vote

AN error in our issue of Sept. 1 needs correction. On page 171 in that issue, we published a recapitulation of the vote on the California Water and Power Act of 1922, and in the introductory paragraph it was stated that the Act required a two-thirds vote to become part of the State Constitution. This statement, unfortunately, was in error. The 1922 Act would have required merely a majority to pass, and the same is true of the proposed 1924 Act which is to be voted upon next November. The fact that this vicious measure requires merely a majority to pass will point the need for our most strenuous efforts, if the State of California is to be saved from industrial socialism.

### The Public Meets the Utilities Half Way

WYOMING has added a new chapter to the history that the public utilities of the country are making in their efforts toward establishing a more friendly feeling between the utilities and the public. During the recent joint convention of the Wyoming Utility Association and the Rocky Mountain Committee on Public Utility Information, an attempt was made to keep the utilities public in fact as well as in name. Officials of the organizations issued an invitation to the people of the city where the convention was held to be present during the deliberations of the two-day session. Several customers of the local electric light, telephone, gas and bus transportation companies responded, thus convincingly demonstrating that the people now have more than a bill-paying interest in their public institutions.

During one meeting the president announced that he would be pleased to have all customer-delegates participate in the discussions or voice any criticisms. The self-elected representatives of the telephone-talking, gas-cooking, light-using and car-riding public offered no criticisms. Instead, one of their number volunteered that "the utilities are on the right road and seem to be approaching the goal of public favor more rapidly than any other line of business." He concluded with the remark that "You men are certainly doing your part. I think that we—your customers—everybody—should at least meet you half way, for, ultimately, we will benefit the most."

What a step in the right direction this is! Those utilities which have been spending their time, their money and the efforts of their employees in improving public relations can feel justly proud that the day is coming—has come, in fact—when the public will meet them "half way."

---

### Vote as You Please But Vote

PRE-ELECTION talk is always interesting. The American citizen orates at length on the issues of the day, declaims with vigor about the crises that confront us,—and then goes home full of a sense of his responsibilities as a voter,—and doesn't vote.

This may seem an extreme statement; as a matter of fact, some of the voters do vote. In 1900, 73 per cent of the registered voters actually did vote; in 1908, 66 per cent; in 1912, 62 per cent; and in 1920, but 50 per cent, one-half, did their duty as citizens.

As a matter of fact it is the "intelligent" class of voters, save the mark, that stays away from the polls. Those best qualified to think, and vote intelligently, are either physically lazy, or palpably negligent in their duty when election day comes. Is it any wonder that the professional politician regards with a certain serenity the obviously vicious legislation that he is promoting and feels that his chances to put it across are good?

This is no new phase of human nature; people have been that way for centuries, but it seems a pity

that with the political freedom existing in the United States, public conscience and personal responsibility have not developed at the same rate as have other activities.

If we have a radical-socialistic president, if we pass the Bone Bill in Washington and the Water and Power Act in California, it will be because the "better class" of citizens stays away from the polls. This "better class" is largely in the majority. If they vote, they will win. Wake up, everybody, and do your whole duty to your country. Vote as you please, but VOTE!

---

**Progress**
**by Unity**

ANOTHER convention of the California State Association of Electrical Contractors and Dealers has passed into history. The entire meeting was marked for its harmony and for the spirit of cooperation evident on all sides. Under competent guidance the association has made progress not alone in the growth of numbers but in the constructive work done for the membership. Once more is proved the truth of the maxim "In union is strength" and the organization starts a new year of activity fortified with the results of intelligent performance. Contractor-dealers throughout the state who are disposed to a proper conduct of their business and to a genuine relation with their fellows will take an active part in the work of the association and lend it their whole-hearted support.

---

**Birds**
**of a Feather**

NOT the least interesting item in the political affairs of California, is the alignment of the forces that are trying again to foist the California Water and Power Act upon the people of that state with the La Follette campaign for the presidency. This should clarify the atmosphere a great deal, for it stamps the whole program as frankly socialistic in its purpose, not merely for the state ownership and operation of power plants, but ultimately of every other industrial and business activity as well.

We wonder what the World War veterans think —if their memories hark back to the black days when the German submarines were sinking our merchant vessels without warning—of the combination between the United States Senator who talked down the proposal to arm them for self-defense, and the California proponents of the Water and Power Act. Likewise, what is the opinion of the labor union men, many of whom are ex-soldiers, whose governing bodies seem to have endorsed the La Follette campaign?

Is our memory so short as this?

---

**The "First"**
**Hydroelectric Plant**

EVERY once in a while some one gets up and makes a statement that the Blank hydroelectric plant was the first to be operated in the United States. There have been as many "first" hydro plants as a political candidate claims "birthplaces" in his scramble for votes before an election. Yet a political candidate can only be born once and there can be only one first hydro plant. The Pacific Coast has done its share in creating an erroneous impression. Several of the earlier plants in the West have been labeled at times as the pioneer.

A careful check of the literature of the electrical industry shows that so far as known the first hydroelectric central station was installed at Appleton, Wis., in 1882. The earliest hydro plant in the West was constructed by the Roaring Fork Electric Company at Aspen, Colo., in 1885. This plant furnished energy to street lights and to the mercantile establishments of the town for lighting purposes. In 1887 energy was supplied to a three-wire Edison system for lighting homes. In 1886 a hydroelectric central station was installed at Spokane and the next year a plant for lighting the streets of Tacoma was constructed in that city. A plant which has often been cited as the "first" in the West was built on the Willamette River in Oregon in 1889, to supply energy to Oregon City.

As far as California is concerned, the first hydro plant was built by the San Antonio Power Company at Pomona in 1891. This plant was the first to employ high tension transmission, energy being transmitted twenty-eight miles at 10,000 volts.

It is highly important that the early history of hydroelectric development in the West be recorded, especially as those who are familiar with the installations are rapidly passing away. If any of the above statements are in error we would welcome information setting the industry aright.

---

**A Rose**
**By Any Other Name**

THERE is an old saying, in effect that nothing is sure but death and taxes. Of taxes there are two kinds, direct and indirect, or in other words, visible and invisible. The income tax is an excellent example of the direct, or visible tax. The other types are merely items of added cost that enter into everything we buy, no matter what it is. Not merely that, but taxes of this nature are pyramided. The man who produces raw material, sells it, with taxes taken into consideration of cost, of course, to the manufacturer. He makes something out of it, adds his taxes, and then his profit, and sells to a jobber. He, in turn, adds his taxes and his profit and sells to a retailer, who repeats, so that the article in question is saturated with tax items, and profits on tax items, by the time the consumer holds up his hands in dismay at what he calls the increasing cost of living.

The socialists, and other advocates of government ownership of utilities tell us about the "saving" to the people if their plan should be adopted. In California, the state revenues are obtained from corporation taxes, now amounting to nearly 10 per cent of their gross revenues. Take the power companies off the list of taxpayers, and every other business will have to make up the deficit. These taxes of course, are passed on to the consumer, who, in the end, will pay for the loss in state revenue, as usual.

AIRPLANE view of Long Beach steam plant of the Southern California Edison Company to which 100,000 hp. of generating capacity is being added. The cooperation of manufacturers and contractors will put the first unit in service several months ahead of schedule.

# Oak Grove Development of the Portland Electric Power Company

By Berkeley H. Snow

Northwest Editor, Journal of Electricity

*THE power supply of the Willamette Valley has recently been augmented by the completion of the 30,000-kva. Oak Grove plant of the Portland Electric Power Company, constructed on one of the tributaries of the Clackamas River at a cost of $8,600,000. In addition to having the highest head reaction turbine in the world the plant possesses numerous other features unique in hydroelectric construction. Ultimate construction plans call for the installation of two additional 30,000-kva. units in the plant.*

IN the respect that it includes the highest head reaction turbine in the world, the Oak Grove development of the Portland Electric Power Company, is unique in hydroelectric construction. Under an 875-ft. effective head a 400-sec.-ft. flow is to develop approximately 35,000 hp. in a vertical reaction turbine constructed in the San Francisco factory of the Pelton Water Wheel Company. Aside from this fact, the plant, which was brought in Aug. 4, 1924, is the newest development on the Pacific Coast and presents many interesting features.

The plant is located on the Clackamas River, Clackamas County, Ore., about 19 miles upstream and southeast of Cazadero, which is 35 miles southeast of Portland. At Faraday, near Cazadero, is situated Station "G," one of the older plants of the company, and it is at this point that contact is made between the new plant and the company's system.

Water is taken from Oak Grove Creek, tributary to the Clackamas River, 6.6 miles above the plant, and in the present stage of the development of the project, the normal flow of the creek is required to operate at full capacity the single unit that has been installed. The creek, finding its source in mountain springs and depending largely upon rainfall for its water, fluctuates in flow between 325 and 600 sec.-ft. at the site of the dam, the year-round average being about the 400 sec.-ft. required in the present installation.

### Construction Railroad and Camps

To facilitate construction, which was commenced in July, 1921, the company extended its electric railway from Cazadero to Straight, a distance of 5½ miles. From here a standard gauge, logging-type railroad was built to the dam site, 24½ miles. Construction of the railroad grade involved the removal of 543,363 cu. yd. of material. Over this road a number of gasoline speeders and four 50-ton, Shay-geared locomotives with suitable freight cars took care of the movement of men and materials, and supplies for the camps.

During construction there were a total of sixteen camps established, fourteen of these being maintained at one time to take care of about 2,000 persons. During this period of peak conditions there was a maximum of 1,800 men employed. The Hurley Mason Company of Portland were the general contractors on the entire job. The J. G. White Engineering Corporation of New York were the consulting engineers on the job, while the company's own engineers did the designing and took care of the engineering during construction.

An arch-type diversion dam of concrete, 69 ft. high and 190 ft. long at the top, sustains a head of 45 ft., and floods about 27 acres. Its crest is at El. 2,035. Three vertical-sliding, steel headgates, manually operated, control the flow of water into the intake structure at one side of the dam, introducing it immediately into the upper portal of a tunnel, 250 ft. long, through an abutting hill. About 180 ft. beyond the lower portal of this tunnel is another hill that was tunneled for a distance of 890 ft., and connection is made between the two by means of a reinforced concrete pipe. Both tunnels are concrete lined. Since the ultimate development of the project involves tripling its present capacity, requiring 1,200 sec.-ft., the headgates, and both tunnels and connecting pipe are designed to carry this flow, and a diameter of 12 ft., 4 in. is maintained.

In the connecting pipe a rock trap was built by depressing the floor of the pipe and leading this depression into a trough. The heavier suspended matter collects in this trough and periodically is expelled into the stream through a gate in the bottom.

### Flow Line

At the lower portal of the second tunnel is a concrete transition section designed to deliver the water to two conduits—the one now operating, a 9-ft. pipe to carry 400 sec.-ft., and one to be installed in the ultimate devtlopment, 11 ft. 6 in. in diameter, to carry 800 sec.-ft. The present line is a single pressure-conduit made of 9/32 in. to 11/16 in. steel plate, fabricated and erected by the Willamette Iron & Steel Works, Portland. It is 6.3 miles in length and weighs 9,600 tons. For the greater portion of its length it is laid in a shallow trench following the irregular-

ities of the terrain except at a few points where canyons are bridged and where two hills are tunneled. It contains standard horizontal and vertical curves with a radius of four and one-half times its diameter.

At each high point in the line is a bell-float air valve, protected by a small wooden house. These valves, of which there are eleven, automatically open with a fall of water in the pipe so as to protect it from collapse from the force of a vacuum created by a stoppage of the flow above. The houses over the valves are equipped with swinging windows that will open inward or outward in case of a rush of air into or out of the valves. At each of the twelve low points in the conduit there is a 12-in. hydraulic gate valve for draining the pipe.

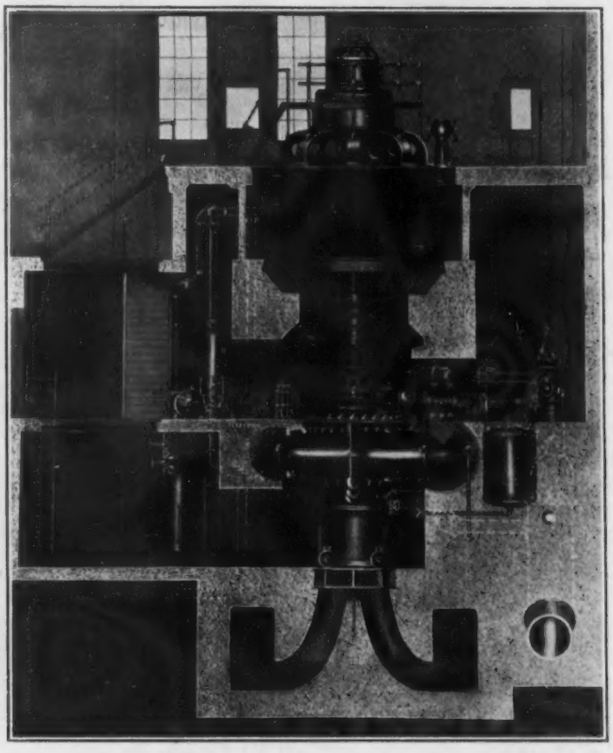
Water can be shut off from the pipe line by means of two butterfly valves, one placed at the head end of the line at the lower portal of the intake tunnel, and the other at the upper portal of the Cripple Creek Knoll tunnel. After the installation of the

Concrete arch type diversion dam on Oak Grove Creek.

second conduit, which will contain similarly placed valves, either line, independently of the other, may be cleared of water for interior painting or repairs.

### Cripple Creek Knoll Tunnel and Surge Chamber

Cripple Creek Knoll is a steep-sided, sharp-pointed hill some 900 ft. high, having its base on the edge of the Clackamas River, with its top rising to El. 2,018. The power plant lies at the foot of this knoll. The flow line enters the knoll at El. 1,850 and a tunnel, 14 ft. in diameter, lined with steel and concrete, extends through the knoll a distance of 430 ft. It is bored with a slight vertical curve downward and a similar horizontal curve to the right to bring the structure to a convenient bench on which to construct the penstock transition. At the upper portal of this tunnel a transition section is constructed to allow the entrance not only of the present 9-ft. line but also of the 11-ft. 6-in. conduit of the completed development. At the lower portal, the



Section through power house showing generator, turbine and draft tube. Removable draft tube section, mounted on wheels, for removal to permit lowering of runner, is also shown.

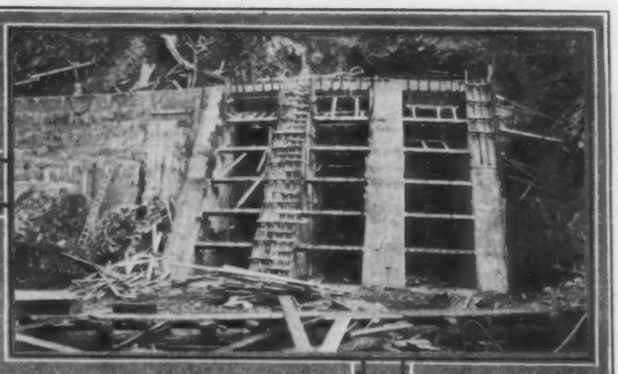
transition section consists of a steel manifold with outlets for the connection of three 8-ft. penstocks.

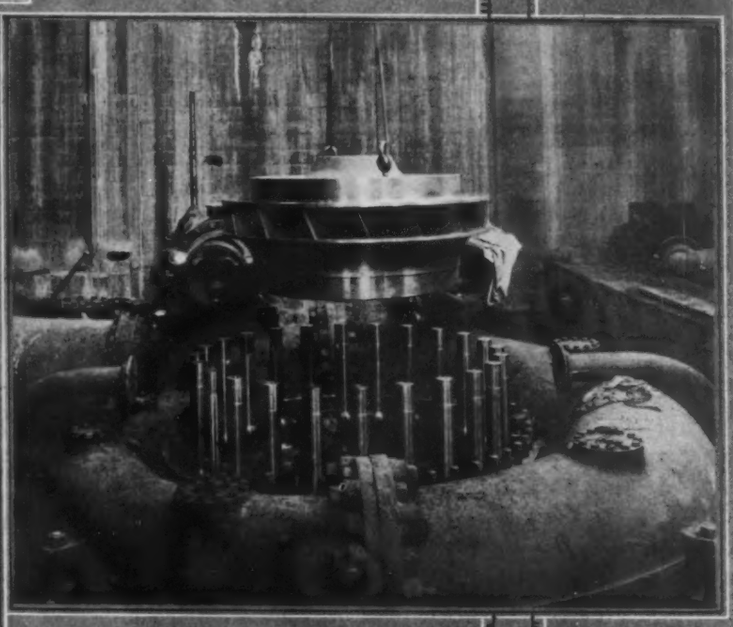
Rising from the approximate center of this tunnel is a vertical shaft, 14 ft. in diameter and 110 ft. high, widening into and connecting with the surge chamber, which is 31 ft. in diameter. The surge chamber rises vertically another 87 ft. which brings it out of the extreme top of the knoll to a height of about 30 ft. above the ground, to El. 2,047. On the south side of the tank, 7 ft. down from the top, a spillway is provided to discharge waste water down the south side of the knoll. This structure follows the standard design of the Johnson differential surge tank, and both shaft and chamber are concrete lined.

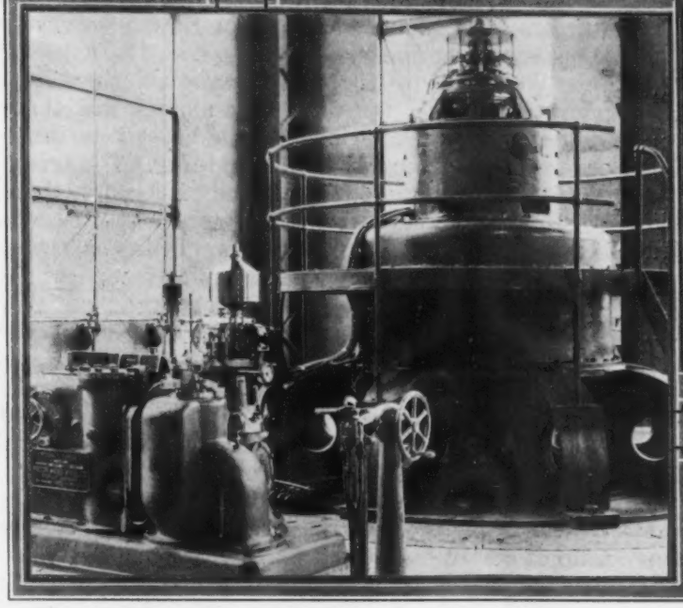
### Penstock

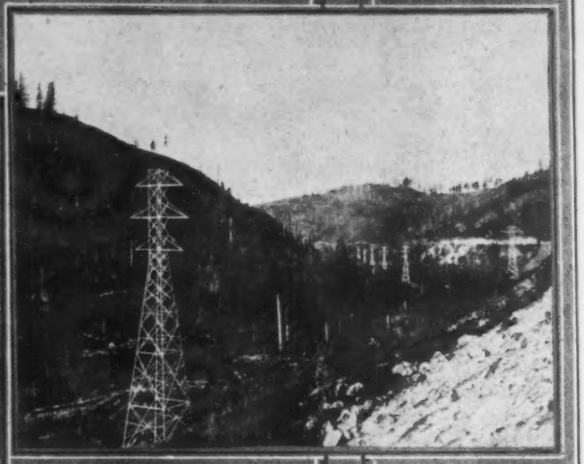
The present single penstock follows the slope of the hill. It commences at the lower portal of the tunnel in the knoll, at El. 1,812, and reaches its bottom El. 1,120 in the power house with a total length of 1,360 ft. It is 8 ft. in diameter at the top and 6 ft. at the bottom, and is made of steel plate, $\frac{3}{8}$-in. to 1-7/16-in. in thickness, fabricated and erected by the Willamette Iron & Steel Works, and is completely encased in a concrete shell. At the top is a 66-in. Johnson valve, hydraulically operated, that can be closed from the power house by a push button

ANOTHER record for hydroelectric design and construction has been won by the West following the installation of the world's highest head reaction turbine in the Oak Grove plant of the Portland Electric Power Company. At the upper right is a view of the tunnel intake during construction work and at the left center a portion of the 6.3-mile, 9-ft. steel flow line may be seen. The bronze runner is being lowered into position in the 35,000-hp. turbine in the illustration at the right center. The lower pictures show generator and hydraulic operating mechanism and a portion of the transmission line leading from the new plant.









electrically controlling the valve operation. At the bottom in the power house is a 72-in. butterfly valve, driven by a geared impulse-water-wheel that is reversible in operation. This valve may also be operated by an electric motor when there is no water pressure on it.

Further provision for water control is made by a relief valve direct-connected to the water wheel gates. As the governor automatically closes the wheel gates it opens the relief valve which bypasses the water around the turbine and discharges it into the river beside the tailrace.

### Power House and Equipment

The power house is a concrete building, 65 ft. by 70 ft., for the present installation of one unit. The ultimate development of three units will necessitate extending the building another 65 ft. in the upstream direction, making it 130 ft. by 70 ft.

The upstream end of the main room, in which the generator is situated, has a floor raised 10 ft. above the ground level. The generator is so placed that only the top bearing and exciter protrude above this floor, while the generator proper is below it and separated from the rest of the room by a solid wall. This design confines the noise and heat of the machine to an isolated room, which is ventilated by ports through the outer wall of the building. In cold weather these ports may be closed and similar ports

View of 9-ft. steel flow line in national forest.

in the ceiling opened so that the generator heat can be diverted into the main room for heating the building. On the upper floor of the main room are situated the governor and the standby exciter, while the lower level is left unobstructed to provide space for working on equipment in case of necessity. Overhead, the 90-ton Whiting crane can travel the length of the room.

On the hill side of the main room, and separated from it by a steel-sash and glass partition, is the switchboard room. Adjacent to this is a small room housing the main oil switch of the generator, the only high tension switch in the building. The lower levels of the building contain the turbine and penstock valves, the gravity lubricating system, the governor oil-pressure system, the battery room, the storeroom for spare parts, another repair room, and the sumps and sump-pumps.

As previously stated, the hydraulic unit installed in this plant creates a new world's record for high head reaction turbines, the former record having been held by two Pelton turbines of similar type operating under 810 ft. effective head in the Kern River No. 3 plant of the Southern California Edison Co. The Oak Grove unit is designed to develop 35,000 hp. under an average effective head of 875 ft. and embodies the most advanced features in turbine design as developed by the Pelton organization in association with the Wm. Cramp & Sons Ship and Engine Bldg. Co. of Philadelphia. At present the unit is operating at an effective head of about 850 ft. Among the outstanding features of the unit are: rubber seal rings for elimination of leakage; Moody spreading draft tube, a portion of which is removable to facilitate inspection of the turbine runner within a few hours time; a 72-in. butterfly valve, equipped with needle-type bypass, and controlled from the main floor through water motor or electric motor; a water economizing governor-operated relief valve, capable of bypassing the full water quantity; a duplicate oil pressure system, each set independent of the other. The turbine output is controlled by a Pelton governor of 100,000-ft.-lbs. capacity, with actuator on the main floor and with servomotors mounted on the turbine casing. The actuator is equipped with a load limiting device and is arranged for remote control from the switchboard.

The generator is a General Electric Company vertical, direct-driven, 30,000-kva., 11,000-volt, 60-cycle, 514-r.p.m. machine having a 90-kw., 250-volt, direct-connected exciter. The auxilliary exciter is of the same manufacture and consists of a 300-hp. motor driving a 200-kw. generator. The switchboard is a modern General Electric, vertical-panel-type board with push button control.

Outside the power house in the downstream direction are located a small machine shop building, the station service transformers, the step-up transformers and the steel switchyard. Station service is supplied through one 500-kva., 3-phase, 11,000-2,300-volt, Westinghouse Electric & Manufacturing Company transformer for the larger motors, and three 50-kw., 2,300-110/220-volt, Westinghouse transformers for the smaller motors and lighting. The transmission voltage of 66,000 is attained through three Westinghouse, outdoor-type, water-cooled, 10,000-kva., single-phase transformers, delta-connected, having a range in full-capacity voltage taps of 15 per cent. The future development of the plant will require a like transformer installation for each additional unit, and a star connection will deliver 115,000 volts to the transmission line.

The switchyard also contains two Westinghouse 115,000-volt oil switches (controlled by push buttons at the switchboard) with bushing-type current transformers. The potential transformer is also a Westinghouse product, rated at 72,600 volts, with a ratio of 660 to 1. At the point where the transmission line leaves the switchyard is cut in a General

Electric Company oxide-film-type, 4-stack lightning arrester, with horizontal spacing designed to operate at 115,000 volts.

### Transmission Line and Telephone

The transmission line connecting the Oak Grove plant with the company's system at Station "G" at Faraday is 18.71 miles in length. It is at present a single-circuit line with 250,000 circ. mil. stranded copper conductors, on Ohio Brass Company suspension insulators, with clearance for 115,000-volt operation. It is supported on one side of steel towers with the center conductor swung 2 ft. wide of the vertical plane in which the top and bottom conductors are suspended. A second circuit can be supported on the other side of the towers when the ultimate capacity is installed. There are 145 towers, furnished by the Pacific Coast Steel Company, San Francisco, having an average height of 72 ft. and a maximum weight of 8,415 lb. Each of the four legs terminates in a horizontal-grill footing buried 6 ft. under ground.

From Oak Grove to Faraday the Clackamas River winds between heavily timbered slopes, so that it was necessary to clear a right of way approximately 400 ft. wide for the transmission line. On account of the nature of the country traversed the line has few long tangents, and it was necessary to cross and recross the river thirty times. For construction purposes, and to facilitate prompt repairs in operation, there were fifteen aerial cable crossings installed from one side of the river to the other.

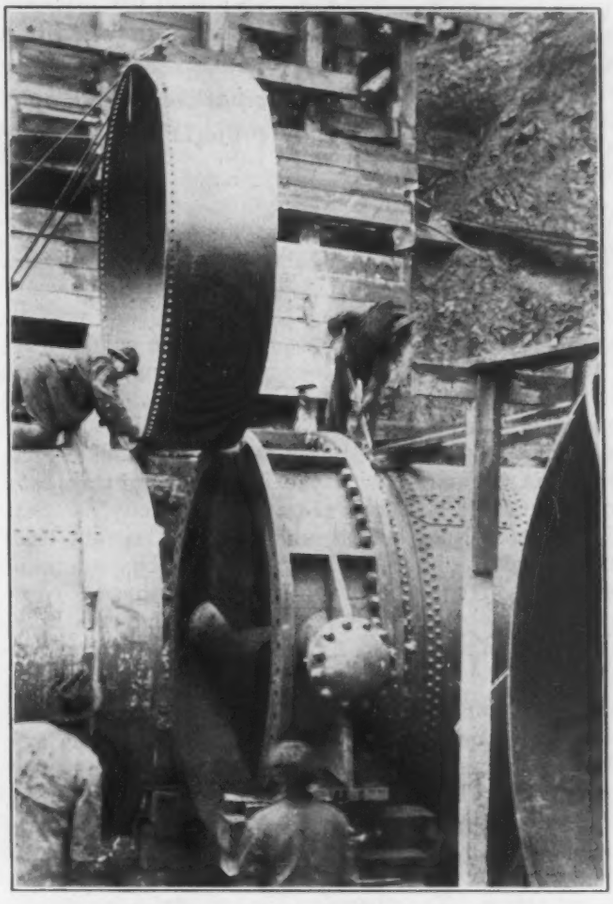
One of the most interesting features of the development is the Western Electric Company carrier-current telephone system. This is the first of its kind to be installed in the Pacific Northwest. Sending and receiving equipment has been installed at Oak Grove and at Station "L", a steam plant in Portland, and a metallic phone line completes the connection to the load dispatcher's desk in the Electric Building, Portland. Eventually this system will be expanded to connect the load dispatcher direct to all the plants on the company's system.

The entire development, with the exception of a portion of the railroad and transmission line right of way, lies in the Oregon National Forest, so that complete cooperation with the Forest Service was necessary to prevent fires during construction. Now in actual operation this cooperation still exists, and the company's material and personnel are available to assist the rangers in their patrol work and fire fighting. There are a number of valves in the pipe line, installed at the instigation of the Forest Service, to be used in case of fire along the right of way.

The clearing for the flow line amounted to 300 acres and for the transmission line, 500 acres. In the course of this clearing 15,000,000 ft. of timber were cut, of which approximately 10,000,000 ft. can be salvaged and hauled out to be cut into lumber. The balance will have to be burned as the Forest Service is requiring that all logs and debris be cleaned up thoroughly.

The cost of the Oak Grove development as it stands is $8,600,000. A large part of this cost was consumed in preliminary and construction expense incidental to the complete ultimate development. Thus in the future expansion of the project, advantage will be taken of the clearing, the railroad, the camp sites, a considerable quantity of construction equipment, the dam and intake tunnels, the Cripple Creek Knoll tunnel and surge tank, the transmission towers, the operators' cottages, and innumerable smaller items of cost that will reduce materially the cost per horsepower of the future installed capacity.

There are several different plans for the future completion of the project in two steps, all looking to the ultimate installation of two additional 30,000-kva. units. One feasible plan that is receiving consideration is to dam the Upper Fork of the Clackamas River to a height of 130 ft., thus creating in the flood season a storage in the so-called Big Bottom of 60,000 acre-ft. This storage would be able to supply the necessary additional 800 sec.-ft. during the low water season, and a tunnel 3 miles long would deliver this water to the present intake. It would then be necessary to construct the second conduit, two additional penstocks, water wheel and generator units, and transformer installations identical with the present ones, and the second transmission circuit on the present towers to Faraday. Increased transmission capacity from there to Portland would also be necessary.



Assembling 66-in. butterfly valve in flow line.

# Comments on the Proposed California Water and Power Act

By Hon. Albert E. Boynton*

*SENATOR BOYNTON, former State Senator of California, analyzes the specious claims of the proponents of government ownership and operation of power plants that power rates are lower under state and municipal ownership, and tells the story of such projects as are still operating under this plan.*

AT the approaching election, for the second time, the proposed constitutional amendment known as the California Water and Power Act, which in the identical form was rejected two years ago by the decisive majority of 354,000, comes before the people of California as an initiative measure.

Our attention is invited by adroit politicians favoring the Act to a sophisticated comparison of certain rates, carefully picked by them, as charged by this or that publicly-owned project with rates charged by this or that private company. Such comparisons are quite misleading. No effort is made to account for incomparable factors in the costs which make up the rate. For example, the domestic lighting rate of a small municipal distribution plant like that of Redding or Lodi or Alameda is compared with the domestic lighting rate of the Pacific Gas and Electric Company in San Francisco. No mention is made of the fact that these small public ownership projects buy all their electricity from the large producing power companies, at wholesale rates set by the California Railroad Commission, and fix resale rates to various classes of consumers without regulation by the Railroad Commission.

These small municipal distribution systems are mere parasites living on the bounty of the power companies. They pay only for the amount of current which they draw through the meter. They serve a profitable and populous territory. For the most part they have little or no investment in underground construction. They have no big industries, no thinly settled agricultural regions to serve, no load-factor problems to solve. One big industry coming into their territory would swamp them. When the Bethlehem Shipbuilding Corporation set up its plant in Alameda it had to get electricity by a special line from one of the large companies.

These municipal systems are petty retailers, favored by conditions because there are so few of them. The gross revenue of several of them is less than that of a small mercantile business. If there were a few more such municipal distribution systems the Railroad Commission would be compelled to increase the wholesale rates which such municipalities now enjoy, for the drain on the other customers of the power companies would become too great. In fact, an increase in the wholesale rates is inevitable. These municipalities usually establish lower rates for domestic lighting than the Railroad Commission sets for the power companies, for domestic consumers are most numerous and have votes, but their **average** rates for all classes of consumers, in every instance of which I am aware, are as high or higher than the average rates charged by the corporations, notwithstanding the fact that the corporations pay taxes amounting to about 10 per cent of their gross revenue from rates.

The California Railroad Commission requires the companies to charge higher rates for domestic lighting in order that industry and agriculture, on which the communities depend, may enjoy lower rates. This is a mere detail of classification. The matter of importance to the community is the average rate, for the man who pays 8 cents a kw-hr. for domestic lighting is compensated by the building up of his city through the encouragement of industry and the cheapening of manufacturing costs. Lodi gets its current for lighting small homes from its tiny municipal distribution system at a lower rate than Stockton pays for the same class of service, notwithstanding the fact that the Lodi municipal system buys its power wholesale from the same company that serves Stockton; but contrast the industrial development and the real estate values of Lodi with those of Stockton! For every class of service except the lighting of very small homes the rates for electricity are lower in Stockton than in Lodi.

There are a few publicly-owned power projects that produce hydroelectric power, such as those of the city of Los Angeles, the province of Ontario, and the cities of Tacoma and Seattle; but in their cases, as in the instance of the municipal distribution systems, rate comparisons are impressive only to those unacquainted with the facts.

### Los Angeles

In considering the venture of Los Angeles into the electric power business these salient facts stand out, and must not be ignored in any discussion of the public power enterprise of that city:

1. The cost of construction was grossly underestimated.

2. The Los Angeles project serves both water and power. The water is brought from the Owens

*Excerpts from an address delivered before the Commonwealth Club, San Francisco, Aug. 21, 1924.

River more than 220 miles away. The aqueduct cost approximately $25,000,000. The power plant is at San Francisquito Canyon close to the city. No portion of the cost of building the aqueduct the 200 miles from Owens River to the power plant has been charged against the power enterprise as part of its capital investment. The aqueduct has been treated in power bureau bookkeeping as if it were a natural stream which Providence had placed in that convenient location for the benefit of Los Angeles. If interest on half of the cost of the aqueduct had been included in the operating expenses of the power bureau the result would increase the power bureau's expense by a very large amount.

3. The power bureau pays no taxes. Its taxes, if it were a private corporation, would have amounted to about $775,000 last year. That is about one-third of the profit which it **claims.** If the service were charged with interest and depreciation for its share of the aqueduct, its claimed profit would be reduced below the boasting point.

4. Since the beginning of the enterprise in 1919, the taxpayers have been compelled to contribute about $6,500,000 for interest on and the redemption of power bonds. Promised profits failed to meet bond obligations to that extent.

5. More than one-half of the electric power distributed by the municipal power bureau is purchased from a private company.

6. Domestic light rates are lower in Los Angeles than in San Francisco but for the most part power rates are higher there than in the northern city, and on the average, without any allowance for the fact that 10 per cent of rates charged by the San Francisco companies is returned to the state in the form of taxes which should be deducted when making the comparison, rates are lower in San Francisco than in Los Angeles. Moreover, in Los Angeles the Los Angeles Gas & Electric Corporation sells power as cheaply as the municipality.

7. The great industrial growth of Los Angeles has been mostly in Torrance, Vernon, and other localities which are not served by the municipal power bureau; and the industrial growth of the San Francisco Bay region, served by private companies, has far exceeded that of Los Angeles.

8. Taxes are lower in San Francisco than in Los Angeles.

9. The investment per capita in underground electric construction is twice as large in San Francisco as in Los Angeles, and interest and depreciation on the cost of underground construction constitute about 12 per cent of the power rate in San Francisco.

### Tacoma's Power Venture

Tacoma has been in the power business for a dozen years. Its plant on the Nisqually River lacked a regulating reservoir, and at minimum stream-flow it ran short of power. In January, 1922, a private company offered to contract with the city to supply it with 25,000 hp. a year at a cost of 10 per cent less than the city could produce it, but the offer was refused. The following winter source-streams froze and Tacoma had a light and heat famine that lasted a week. Street lights went dark, heat service was restricted and apportioned, and an epidemic of sickness followed.

For a while Tacoma was buying current from private companies at 8.2 mills a kw-hr. and selling it on heating contracts at 5 mills. This was the famous ½-cent rate that inspired public ownership advocates to put out a story about Tacoma becoming a chimneyless town. As a matter of fact Tacoma got tired of losing about $10 a year on every heating customer and stopped taking such contracts a year and a half ago (March, 1923). Under a new plan strict limitations were imposed, rates were doubled, and service was made subject to discontinuance during November, December, January and February, the four coldest months in the year in a section where artificial heat in winter is necessary to life.

At last accounts Tacoma's contracts for heating houses were 2,150 in number and getting fewer instead of more numerous. Tacoma has 25,000 homes, and the high mark for houses heated by electricity was less than 9 per cent—no great showing for a "chimneyless town."

Tacoma has overhead wires. Its power lines were built out of depreciation reserve, its street lighting investment was paid for by assessments, and the legal costs of the lighting business are paid out of the general fund. Naturally its books show a profit, but it is now busy with a new power project at Lake Cushman, and when this is completed the bookkeepers may have to resort to other and stranger expedients to encourage the voters and to hold their own jobs.

### The Sad Record of Seattle

Seattle has been in the light and power business about eighteen years, yet today a private company supplies 70 per cent of the current used within Seattle's city limits.

One of the great achievements of the Seattle municipal power adventure was the building of the Cedar River dam. Against the advice of the state geologist they built the dam on a glacial moraine and it leaked as badly as a sieve. Twice the dam broke. The first time the waters overran the little village of Cedar Falls and drove 200 people from their homes. After that Seattle had the site of Cedar Falls condemned for watershed purposes and patched the dam, but it broke through again one holiday season, put the tracks of the Milwaukee railroad 10 ft. under water and wiped out a lumber camp. This time Seattle answered damage claimants with the solemn declaration that the disaster was an act of God.

Seattle put about $2,000,000 in its leaky dam, and today the dam's principal use is that of a foot bridge across a canyon.

Then there is the Skagit project, a tremendous development that private companies dared not undertake because of great cost and lack of market. After rejecting the proposal of a contracting firm to build a 50,000-hp. plant and transmission line for $5,000,000 the city went ahead on the theory that it could do the work cheaper. Since then several years have passed. Two or three times plans were changed.

Proposed height of dam was decreased, rock-filling and timber-cribbing was substituted for concrete, capacity figures were revised downward, yet costs kept rising. To date Seattle has issued $11,000,000 in Skagit bonds, and the coming in of the first unit, which was set for the first day of last January, is still a matter of uncertainty. Yet the city's public ownership experts said that a plant larger and more durable than the one Seattle will eventually get would not cost more than $4,980,000. It hasn't any plant yet, and the interest charges are running merrily along to the tune of $600,000 a year. Now the interest is being charged against construction, but when Skagit finally comes in that $600,000 will cut a great hole in the annual receipts of the municipal light and power department. What Seattle will do with its excess power is a question. The cost will forbid rate reductions, and at best its sales demands will do no more than keep pace with the city's normal growth. So the Seattle public ownership advocates seek to extend their power business into outside territory, and are now beating the cymbals for the Bone bill that would permit Seattle to sell light and power anywhere in the state **without paying any taxes.**

So far as rates are concerned Seattle today charges its people more for light than is charged in Spokane, which depends wholly upon a private company (40 kw-hr. in Seattle cost $2.20; the same amount in Spokane $2).

### Facts About the Ontario Venture

The Province of Ontario has a great publicly-owned power system. Most of its power is derived from Niagara Falls, the greatest natural source of water power in America. The principal centers of population, which are the big markets for power, are much closer to Niagara Falls than are the big cities of California to our sources of power in the Sierra, and the country between is much less difficult for transmission construction and operation in Ontario than in Californa. The Province sells power at wholesale rates to the municipalities which, in turn, distribute it to the public. The system of rate-making in Ontario, where there is no regulation, is entirely different from the system in California. Thus by reason of both natural and artificial conditions a comparison of rates between Ontario and California is not likely to shed any light on the question as to whether it would be expedient for the State of California to undertake the production and distribution of hydroelectric power. Rates in Ontario ought to be very much lower than they are in California because of the fact that Ontario possesses Niagara as a source of power and because Niagara is close to the big cities.

The Gregory Investigation Commission on the Hydroelectric Power Commission of Ontario found, as reported by the "Electrical World," March 22, 1924, "that the principal estimates of cost developments submitted by the Commission to the government have been, in nearly all cases, far too low. So wide has been the difference between estimates and costs that the fact that the estimates should have been submitted as representing the probable cost of the works seems almost incredible." This is the familiar story with respect to public ownership projects. The taxpayers are tricked into the enterprise by underestimates of cost and are then compelled to add greatly to the investment in order to protect the money previously sunk in it.

### Political Lighting Rates

Domestic lighting rates charged by some of the municipalities in Ontario are apparently considerably lower than domestic lighting rates in California. Lighting rates there are generally lower than power rates. Under publicly-owned power enterprises the domestic lighting rate is likely to be a political rather than a scientific rate because the domestic lighting consumers represent the votes. In California, as I have said, our Railroad Commission makes the domestic lighting rate high in order that the industrial and agricultural rate may be low, deeming that the interest of the community is best served by that classification. Whether the theory of the Railroad Commission be right or wrong, obviously to compare the domestic lighting rates in Ontario with the domestic lighting rates in California is unfair to the regulated power companies of California. The public power service of Ontario pays no taxes, whereas, as I have said, the taxes—federal and state—collected from the power companies of California amount to about 10 per cent of the rates. Nevertheless there is no evidence, in spite of the natural advantages that Ontario enjoys and in spite of the tax differential, that **average** rates in Ontario are lower than average rates in California. Indeed, in many of the municipalities of Ontario even the **domestic** lighting rate is much higher than it is in any California city.

In California the companies serve all sections and all classes: the unprofitable as well as the profitable territory. Only about one-half of the population of Ontario is served with electricity and that one-half includes the profitable congested areas. In California virtually the entire population commands electric service. Farmers particularly fare poorly under the Ontario system. At the close of 1922 there were less than 14,000 consumers in the agricultural regions of Ontario. The population of the Province is only one-half million less than that of California but in California the number of agricultural consumers is 167,500. The rates to agricultural consumers are much lower in California than in Ontario although in Ontario the electric service pays no taxes and the provincial government subsidizes the agricultural service by paying 50 per cent of the investment charges on such service.

H. G. Butler who was power administrator of California said last March that "there is probably nowhere in the world an agricultural territory so well served by electricity as the two great central valleys of the state, the San Joaquin and Sacramento Valleys."

The average consumption per capita in Ontario is 168 kw-hr. while in the territory served by the Pacific Gas and Electric Company and the Great

Western Power Company it is 179 kw-hr., which would not indicate that the consumers in Ontario had any advantage in the matter of average rates.

While the reports of the Ontario Power Bureau show power rates, they fail to show the total consumption of electricity for power purposes and therefore it is impossible to compute from them the average cost of power per kw-hr. for all classes of service in Ontario. The reports of the Pacific Gas and Electric Company indicate that the average rate per kw-hr. sold by that company to all classes of consumers in 1923 was only 1.96 cents. I repeat that comparison of power rates for electricity between Ontario and California signifies little or nothing because neither physical conditions nor rate classifications are comparable. Supporters of the California Water and Power Act persist in comparing the domestic lighting rates of selected cities in Ontario with those of selected cities in California and it therefore becomes pertinent, but merely as a demonstration of the fallacy of such arguments, to cite other comparative rates.

### Quebec Excels Ontario

In the Province of Quebec, power is served by private companies under regulation and the private companies there pay taxes. The average capital cost per horsepower in Quebec is nearly a third lower than in Ontario. The average annual revenue per 1,000 kw-hr. of output is $8,476 in Quebec as against $12,819 in Ontario; and if taxes were charged in Ontario the rates would have to be at least 15 per cent higher. The average kw-hr. output per employee is twice as great in Quebec as in Ontario which would seem to imply that Quebec systems were twice as efficient as the Ontario system.

### California Leads Nation

So, it seems to me, the proponents of the California Water and Power Act have failed to make out an affirmative case for their proposal. But even if their arguments were sound there are positive objections to the measure that to me seem overwhelming.

To start with, California as a whole is supplied with all the electric power the economic welfare of the companies and consumers warrants notwithstanding the fact that the drought has caused some temporary enforced economy in the southern part of the state. The net increase in the production of electricity by water and steam in California has been 36 per cent over 1920 and the output of hydro plants alone increased 60 per cent in 1923 as compared with 1920, which is three times the increase for the United States. The reports of the Geological Survey show that in 1923 the hydroelectric output in California was 15 per cent greater than in New York and that it was 21 per cent of the hydroelectric output of the entire United States. Investments in the power business, whether under public or private auspices, must be made with some thought of the ability of the public in the territory to pay a return on the investment; and the consumers cannot afford to pay a return on capital expenditures for plants that are needed or useful only at the end of long dry periods.

The bonded debt of the State of California (not including that of any political subdivisions) is less than $100,000,000 but is larger than the bonded debt of any state except two. To increase that debt by $500,000,000 would be economic insanity. California rates for electricity are the lowest in the United States. It is by no means certain that the power business operated by the state would not result in losses under political management. This state is paying about all the taxes it can bear. Why, then, should we take a chance on greatly augmenting our taxes? Taxes today are a more serious problem than bills for electric current. Besides, we get value received for the current bills, and we are not by any means certain that we get value received for the taxes.

Should the state borrow $500,000,000 by issuing tax-free bonds, and invest that money in property which would then on account of being public property become tax-free, the result would be that $1,000,000,000, of money and property, on which taxes are now paid, would become exempt; and the tax burden on other property would become proportionately heavier. When sources of the state's revenue are cut off the state does not diminish its expenditures; it merely finds some other source of revenue by laying additional taxes on other taxpayers.

About $7,000,000, or nearly a fifth of the total revenue of the state, is paid annually by the power companies in taxes to the state. To cripple the power companies with state competition would certainly impair the state's revenue to a large extent; and the lost revenue would be made up by increased taxes on other taxpayers.

In short, we do not need to put the state into the power business and we cannot afford to do so.

### Government in Business

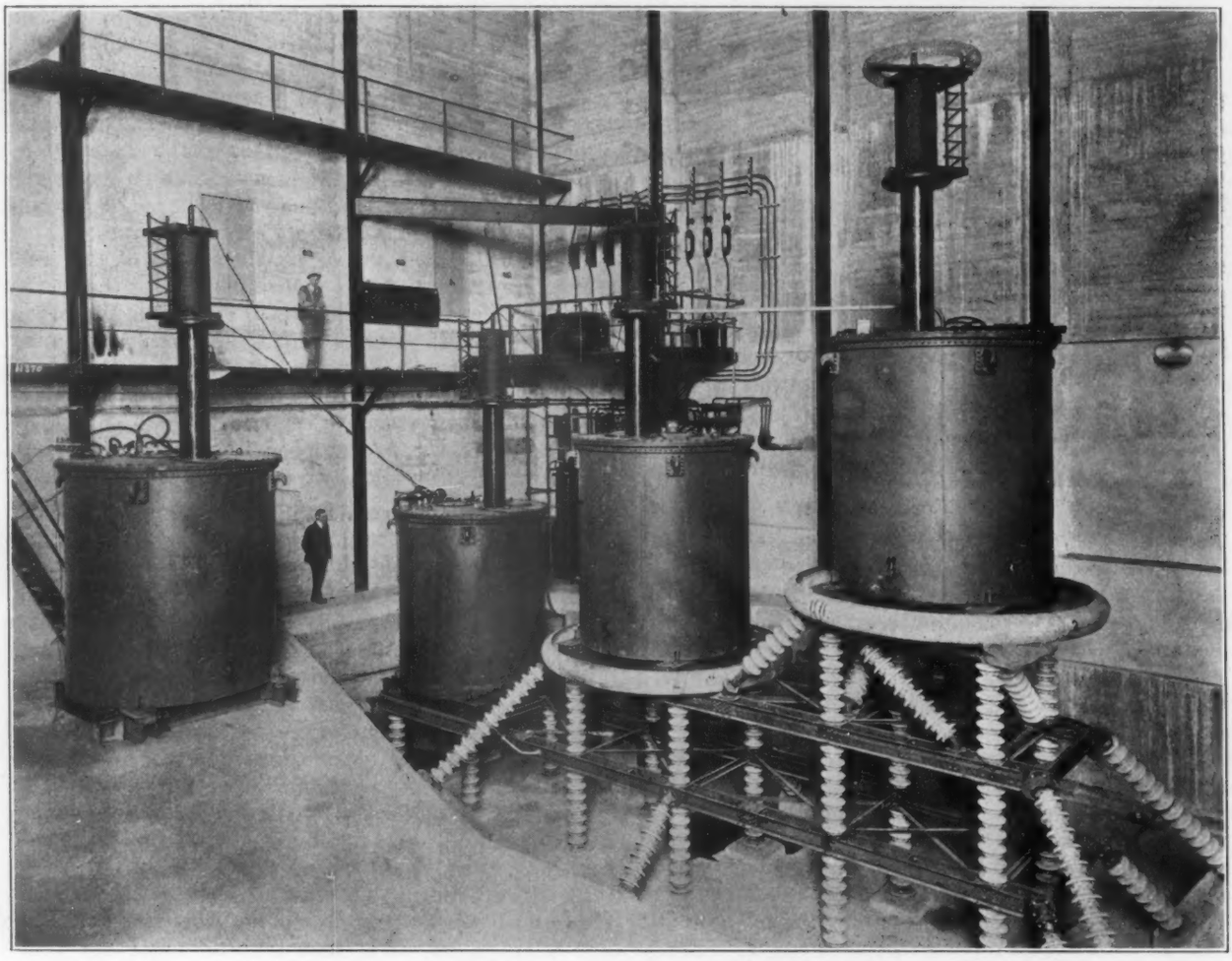
Let me close with a general remark on the danger of such proposals for embarking government in business. The function of government is not business but government. If the state should go into the power business it should go into many other kinds of business—insurance, cattle, meat, sugar, farming, mining, oil, railroading, banking, and journalism. Every reason urged for state operation of the power business is as good a reason for state operation of any other important business. Electricity is a less formidable item in the household or the industrial budget than many other articles. Why begin with power? Why not begin with office buildings or banks? Be sure, that if we begin with power, and do not go broke, we shall not end with power. The men who advocate the California Water and Power Act, for the most part, would advocate any measure for the state control of industry except, of course, the particular industry in which their money happens to be invested. Whether or not they acknowledge or even realize it, they are in principle opposed to the institution of private property and they are doing their best to destroy it through taxation which is the only method by which, under our constitution, private property can be taken by due process of law **without compensation.**

# California Institute of Technology's Million-Volt Laboratory

By Royal W. Sorensen

Professor of Electrical Engineering,
California Institute of Technology, Pasadena, Calif.

CALIFORNIA'S precedence in the development of high tension transmission to a point where 220,000 volts is being successfully employed by two of the largest utilities in that state has been a contributing factor in the establishment at the California Institute of Technology, Pasadena, of the only million-volt laboratory outside of those maintained by the two large manufacturing companies on the East Coast. The recent completion of the laboratory and the naming of Pasadena as the meeting place for the annual Pacific Coast convention of the American Institute of Electrical Engineers, Oct. 13-19, 1924, is attracting nation-wide interest at the present time.



Interior of the recently completed million-volt laboratory at the California Institute of Technology showing the four 250-kva., 250,000-volt transformers and the supporting structures.

Almost five years ago, Armistice Day, 1919, to be exact, the author conceived a transformer connection which, while of much interest, seemed to have little practical value at that time. Less than a year later the growing demand for higher voltage transmission lines in southern California, combined with the lack of a really high voltage laboratory near the Pacific Coast, resulted in the conception of a plan for erecting on the campus at the California Institute of Technology a laboratory producing a voltage sufficiently high to supply the demand for many years to come.

The goal set was 1,000,000 volts line to ground. Setting this goal meant the overcoming of much impedance, because up to that time the maximum potential developed between line and ground was just half the amount desired. One million volts between

terminals had been developed by C. L. Fortescue as long ago as 1913. This was accomplished by means of two transformers, producing 500 kv. line to ground, connected in series with the common point grounded as illustrated in Fig. 1.

Correspondence extending over a period of several months having failed to bring forth a satisfactory plan whereby 1,000,000 volts from line to ground could be obtained, the author suggested as a possibility the cascade connection (sometimes called chain connection) which he had developed as has already been stated.

### Four Transformers Ordered

As a result of this suggestion, after the working out of many details the Westinghouse Electric & Manufacturing Company agreed to build four 250-kva., 25,000-volt units, each unit to be provided with a primary, secondary and exciting winding as needed to cascade them in such a way as to give 1,000,000 volts total between line and ground. The Southern

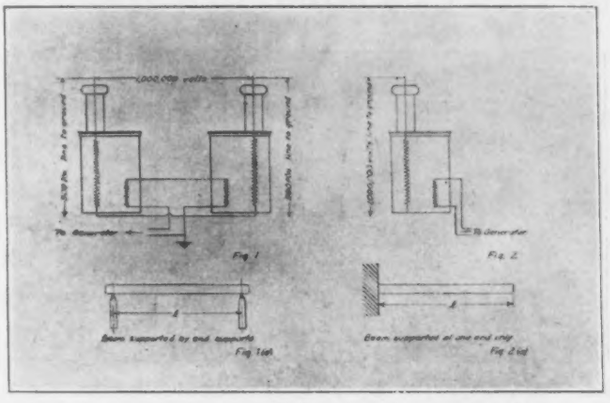


Fig. 1 showing the million-volt connection conceived by Fortescue in 1913.

California Edison Company, acting as sponsor for the laboratory, accordingly ordered the equipment, which was installed in a building erected by the Edison company on the Institute campus.

The first units were delivered in the fall of 1923 and after a year of trying various schemes of insulation between units the completed equipment has been installed as shown in the accompanying photograph.

Insulation between units is obtained by means of racks made up of porcelain insulators and structural steel framework. This was the type of installation originally planned, but abandoned in favor of unsatisfactory redwood stands because of the seeming impossibility at that time of getting a porcelain insulator having the required mechanical strength.

As will be seen from one of the accompanying photographs, the equipment consists of four 250-kva., 250,000-volt units. Unit No. 1 at the left is standing on the floor. Units 2, 3 and 4 are each upon steel frameworks at potentials of 250 kv., 500 kv. and 750 kv. above ground, respectively. These frameworks are separated by insulator stacks as shown in the diagram, each stack being made up of 7 units of Jeffery-Dewitt insulators.

### The Electrical Connections

The electrical connections are shown diagrammatically in Fig. 2. Unit No. 1 receives energy from a pair of regulating transformers, each rated 550 kva., 50 cycles, 15,000 to 3,000 volts. With 3,000 volts on each half of the primary of Unit No. 1 there is induced in the secondary a potential of 247,000 volts and in the exciting winding a voltage of 3,000, making a total of 250,000 volts. The exciting winding of this unit is connected in series with its secondary, and is also connected to the primary of Unit

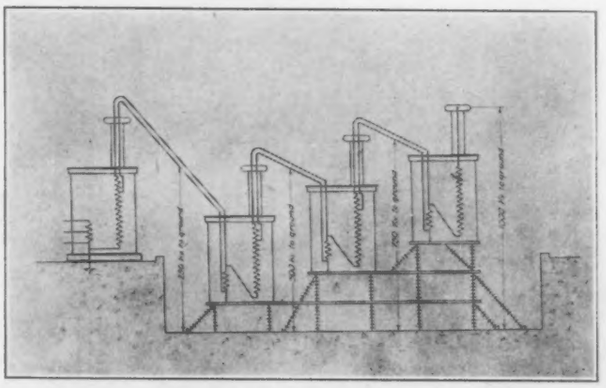
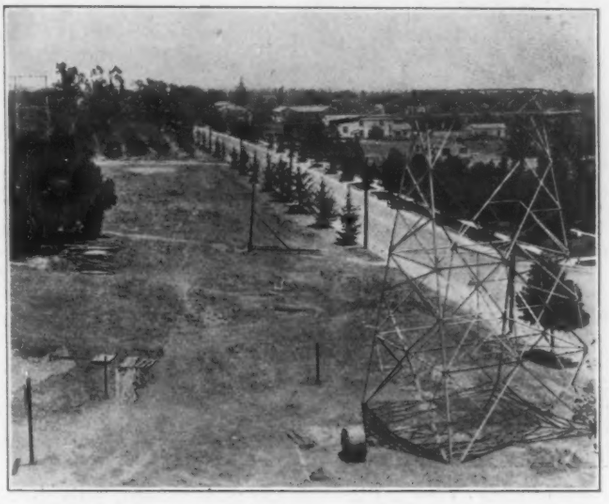


Fig. 2 showing schematic diagram of transformer installation at California Institute of Technology.

No. 2, which is a duplicate of Unit No. 1 but has its primary windings connected in parallel. By this means Unit No. 2 is connected in such a way as to add its voltage to that of Unit No. 1, and so on through Units 3 and 4, there being 1,000,000 volts from the terminal of Unit No. 4 to ground.

Each unit weighs 45,000 lb. and contains 2,950 gallons of oil. To make one of the units required approximately 11,000 lb. of iron and 60,000 ft. of wire.



A view of the 1,000-ft. test transmission line.

The complete rating of each unit is 250,000 volts high voltage, 3,000 or 6,000 volts low voltage, 50 cycles, single phase. Each unit is provided with a 150-300-volt voltmeter winding, one-half of the winding being on each leg of the core.

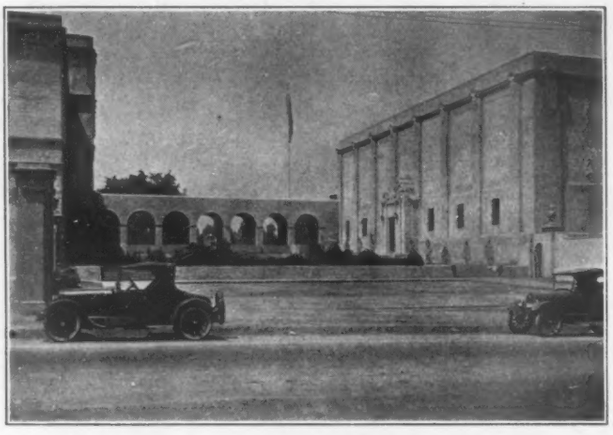
The regulating transformers receive energy at 15,000 volts and deliver it to Unit No. 1 at potentials varying from zero to 3,000 volts on the secondary of each regulator. The common point of connection between regulator secondaries is grounded, hence the primaries of Unit No. 1, in series, have a maximum potential of 6,000 volts across the entire winding of the transformer, with 3,000 volts from terminal to ground on each half, and on each regulator.

The regulators and switches are controlled by two switchboards, one on the lower observation gal-

Inscription inside of the door of the laboratory.

lery and one on the main floor. Either board may be used or the transformers may be separated and one board used for each part of the equipment.

The switches in the regulating transformers are operated by a direct current motor equipped with an armature rheostat for speed control. Combined with the switches is a small induction regulator which works in conjunction with them to give absolutely a smooth change in voltage without any evidence of irregularities.



General view of the million-volt laboratory showing the Norman Bridge Laboratory of Physics on the left.

### Voltage Measurement

The problem of measuring the voltage of this equipment is a large one, at present the total voltage being measured only by a 100-cm. sphere gap voltmeter.

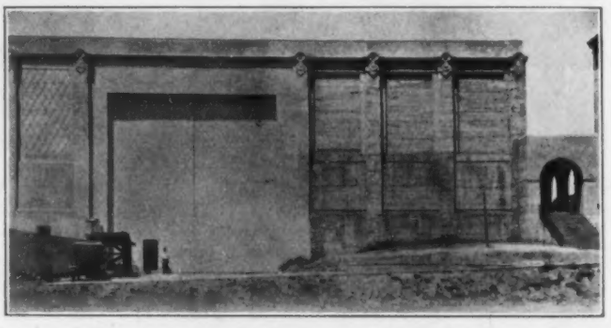
For checking, the voltage of each unit can be approximately determined by means of the voltmeter coils, and as a further check there is provided a crest voltmeter which may be used in connection with the condenser bushing of any unit whose tank is kept at ground potential.

Not the least of the desirable features of the cascade connection is the possibility of having two, two-unit equipments good for 500,000 volts with two units in cascade, or of connecting the high voltage windings of these units in star, thus obtaining 433,000 volts three phase.

Many other combinations, of which the following are illustrative, may be obtained: 1,000,000 volts between terminals, center grounded; 500,000-volt step up—step down, single-phase system with one end or center grounded as desired.

### Building Characteristics

The building housing this equipment is of class A construction. It has a fabricated steel frame imbedded in reinforced concrete.



East elevation of the laboratory showing the immense doors through which the transformers are connected to the test line.

One picture shows the east elevation with its doorway 40 x 45 ft., through which a high voltage transmission line may be connected to the 1,000,000-volt transformer.

Opposite the end of the room where the transformers are located is an office, a lavatory, a photographic dark room and a store room for small apparatus. The roof slab of these rooms furnishes a large floor upon which is mounted a 20-kw. Poulsen arc set for obtaining power at high frequency. On a level with the ceiling of these rooms (15 ft. above the floor) is a runway or observation gallery along the entire west side of the building. There is also an observation gallery at the 30-ft. level along the wall, and there is a runway built in the roof trusses directly over the center of the room. The floor is 64 x 138 ft. in area and the lower members of the roof trusses are 48 ft. above the level of the floor.

Adjoining the east side of the laboratory there is available a transmission line 1,000 ft. long, for use in making tests requiring such a line.

Demonstrations of the equipment will be made before engineers attending the convention of the American Institute of Electrical Engineers later this month.

# Winning Public Good Will Is Theme of Glenwood Springs Convention

By S. W. Bishop

Executive Manager, Denver Electrical Cooperative League, Denver, Colo.

A dominant theme of public relations based on generous and constructive suggestions, many of them concerning utility employees and their training, and reflecting for the first time the active participation of women organized in an effort to "win the public," pervaded the annual joint convention of the Colorado Public Service Association and the Rocky Mountain division of the N.E.L.A. at Glenwood Springs, Colo., Sept. 15-17, 1924. It was the twenty-first annual gathering of the former association and the fifth meeting of the latter and a new record for attendance was established with 188 registrants, of which about 60 were women.

With a twelve months' background that evidenced a growing activity in municipal ownership and operation in the Mountain region and with a consciousness of the state ownership propaganda being spread further to the West, spirited interest was evidenced in the various papers and discussions but the underlying strain was one of constructive development on the part of privately owned companies rather than in the devising of ways and means of a negative character to meet the evil.

Chief executives of all the large utility companies in the region were present and Ernest Stenger, receiver for the Denver Tramway Company, in a talk on "The Present Trend in Regulation of Public Utilities" hit a keynote, judging from the popular approval when he said that the trend of yesterday is reflected in the regulations of today and that there was little use for utility operators to complain if they failed to regard the trend of today and the results it would bring later.

"We have waited until too late to receive beneficent influence. A splendid example is observed in the railroads. Influences working against them, especially through employees, are undoubtedly due to the errors of by-gone days. The greatest system of transportation in the world is in jeopardy due to the crystallization of sentiment of those very same days. Other utilities can profit from this unfortunate experience of the railroads and regret the day when a flood of regulations came from the announcement of the alleged 'Public-be-damned policy.' Justness from the public is absolutely reciprocal with that of the utility company."

This trend of thought was given further definite expression later on the program but from a different angle when Dr. S. K. Loy, mayor of Casper, Wyo., metropolis of that state, and a prominent executive of the Midwest Refining Company, approached the problem from the viewpoint of the consumer and municipal executive. Not in the form of advice but as a definite statement he said that utility companies must reach down to the level of the common mass.

Dr. Loy, a former faculty member of the University of Wyoming, compared the operations between public and privately owned utilities and to the latter he gave full credit, although he made the charge that most public service companies have too much red tape in dealing with the public.

Following the precedent established at the recent convention of the Wyoming Utilities Association, invitations had been extended to the public to attend the sessions of the convention. As a result a number of customers from western Colorado towns were in attendance. Due to the length of the program general discussions were not feasible but a

### *Convention Sidelights*

D. L. Webb, counsel for the Public Service Company of Colorado, copped the golf honors as did Rodney Bardwell, of similar company capacity, last year.

Norman Read in addition to his position as president of the Rocky Mountain division, N. E. L. A., qualified as a swimming instructor for ladies in green suits.

Who was it that knocked on the door of Clare Stannard at 3 a.m. with one of the very same canes which his company so graciously donated?

Jack Clay, manager of the Western Colorado Power Company, in addition to bringing all his district managers to the convention brought his family. Some ventured to ride in Jack's "Nash" with 4 wheel brakes.

"Imported Salomi" on the bill of fare of the Hotel Colorado proved to be a typographical error and not a bizarre entertainment as contemplated by Jack Greenawalt.

Sam Doane, chief engineer of the National Lamp Works and honorary vice-president of the Colorado Public Service Association, was in attendance as in former years.

As a moving picture camera man, Billie Sterne made a good utility operator, banker and druggist. The convention film may be shown next year—then again it may not.

John Cooper and "Mrs. John" arranged the splendid entertainment at the convention and still found time to attend sessions.

Art Prager of Albuquerque brought his bride to the convention, also a New Mexico war-whoop, easily discernible any hour of the night.

Every utility man learned what a demagogue was after listening to the forceful address of Charles R. Brock on "Americanism and Its Greatest Menace."

While Al Cornell of the Western Electric Company negotiated 39 holes of golf in one day, Ken McIntyre of the S.E.D. turned in a card for three less dances at night.

healthy interest in every paper and talk was manifested by the visitors.

Norman Read, vice-president and general manager of the Colorado Power Company, merged with the Public Service Company of Colorado, in his opening remarks as president of the Rocky Mountain division said that no longer are conventions given over to technical discussions, for now the problem is one of mutual betterment and improved relations and this development has given a place to women in the utility industry. He added that although their work was comparatively new it was pioneering—with a number of trail-blazers present.

Although these remarks were not used as an introduction of the particular speakers, conventionites deemed them apropos for the group which included Miss Sarah Sheridan, vice-president and manager of sales, Detroit Edison Company, Mrs. Florence E. Tate, secretary of the Kentucky Hydro Electric Company, Louisville, Ky., who represented Miss R. E. McKee, chairman of the national woman's public information committee, and Miss Inez Thompson of the Public Service Company of Colorado, Denver, chairman of the woman's public information committee in the Mountain division.

In addition to appearing on the general convention program, they took part in the separate meeting of the women's committee, which was featured at the convention for the first time. All ladies of the convention, whether directly connected with the utility business or otherwise, were urged to attend this session. Further discussion of their particular problems and plans for development and further organization during the coming year were considered.

Miss Sheridan, a nationally known figure in the utility industry because of her achievements in commercial lines, presented a paper on "A Sales Department Organization" based on the arrangement in her own company. Because of the sales department's constant contact with the public she explained why it was deemed advisable to charge that department with many functions which other companies allotted to the engineering and operations or accounting departments.

"The Woman Employee and Public Relations," the subject of Mrs. Tate's address, injected a common sense angle of interest in the convention deliberations. Mrs. Tate said that the woman's problem in industry is to help and owing to her special fitness all that she wants is the opportunity to demonstrate it. She added that the success of a national program has as its first essential the cooperation of all utility executives. Prompt, courteous, dependable service being the objective of utility companies, the aim of the woman's committee work is to tell this story of service intelligently to the public, she said, and added the suggestion that one of the most effective means of studying this problem was through a round table consideration by company women.

Herbert Metz, publicity manager of the supply department of the Western Electric Company, in his paper on "Advertising and Good Will" made a plea for a better understanding of advertising and cautioned that utility men should not conceive it as an exact science and that due to other interests advertising could not be considered as static; also that to obtain proper results qualified personnel was absolutely essential. He said that a discontented customer could do more harm than any amount of advertising could do good and for that reason it was desirable to look well to the employees in contact with the public. Reference was made especially to those having frequent contact with customers.

Another major feature of the convention was the discussion pertaining to the national Home Lighting Contest and the results obtained by Clare N. Stannard, vice-president and general manager of the Public Service Company of Colorado, who is serving as director of the tenth regional district. Fifteen additional communities, chiefly in Wyoming and New Mexico, were lined up to participate in the activity and the finishing touches were given to the plans of operation of various Colorado companies in over forty communities. Kenneth A. McIntyre of the Society for Electrical Development represented the Lighting Educational Committee and had a place on the program.

Mr. Stannard, assisted by Charles A. Semrad, Colorado state director, arranged two meetings in which executives from every lighting company represented at the convention participated. Advertising, prizes, schemes of organization, cooperation on the part of educational authorities and other subjects were discussed. A further result was the voluntary offer of Arthur Prager, manager of the Albuquerque Gas & Electric Company, to further stimulate interest in the campaign in New Mexico. He immediately made arrangements for an early meeting of the principal companies in his state to decide on final details of operation.

Grant E. Halderman, chairman of the Public Utilities Commission of Colorado, in his paper on "The Certificate of Public Convenience and Necessity" traced the chronology of this important requirement and cited the principal cases coming before the commission, especially that concerning the situations in Holyoke and Loveland where the courts recently construed the rights of a municipality as opposed to commission rulings. The principal point brought out was that under proper regulation privately owned utility companies should have equal footings as to rights with municipalities.

Officers elected to assume their respective positions July 1, 1925, in the Colorado Public Service Association are: president, W. P. Southard, manager Trinidad Electric Transmission Railway & Gas Company; first vice-president, Edward A. West, general superintendent, Denver Tramway Company; second vice-president, E. F. Stone, assistant general manager, Southern Colorado Power Company; third vice-president, J. F. Greenawalt, publicity manager, Mountain States Telephone & Telegraph Company; secretary and treasurer, O. A. Weller, budget director, Public Service Company of Colorado. Members of the executive committee: C. N. Stannard, Public Service Company of Colorado; H. S. Robertson, Denver Tramway Company; F. H. Reid, Mountain States Telephone & Telegraph Company; W. N. Clark,

Southern Colorado Power Company; J. A. Clay, Western Colorado Power Company.

Officers elected by the Rocky Mountain division, N.E.L.A., for the same period are: president, Charles A. Semrad, commercial manager, Public Service Company of Colorado; first vice-president, Arthur Prager, manager Albuquerque (N. M.) Gas & Electric Company; second vice-president, Clare N. Stannard, vice-president and general manager, Public Service Company of Colorado; third vice-president, E. P. Bacon, manager Natrona Power Company, Casper, Wyo.; treasurer, A. C. Cornell, manager Western Electric Company, Denver. O. A. Weller, Public Service Company of Colorado, Denver, was reappointed secretary.

All convention arrangements were for the first time placed in the hands of one man as general convention chairman. E. A. Phinney, former president of the association and operator of the Jefferson County Power & Light Company at Golden, Colo., assumed this role and had as his assistants A. C. Cornell and O. A. Weller.

Chairmen of the principal convention committees were: F. F. McCammon, Publicity and Attendance; J. F. Greenawalt, Program; C. C. Johnson, Transportation; and John J. Cooper, Entertainment.

# Water Conservationists—More Power to 'Em

## Second of the Byproducts of Conventions

By Wm. A. Cyr

ATLANTIC CITY, the National Electric Light Association, and the Eastern sideboard were blessed by the falling of gentle rains from the great heavens above—as a politician would express such a simple fact. Anyway it rained. Not so the great Southwest, where men are men.

Oil stockers and other superlugubrious advertisers have had rather unlubricated sledding of late, due to the efforts of the Better Business Bureau boys. In fear of a Senate investigation or something, Nature evidently decided that "truth in advertising" should actually be applied to the Los Angeles Chamber of Commerce climate data. At any rate, "It Ain't Gonna Rain No More," it seems, in sunny California.

Such a condition could not but move a tenderhearted convention. Surrounded by water (salt), in a city well provided for by full reservoirs, steam power plants and mountain dew from the mesquite hills of Baja California, the mathematical principle of inverse ratio just up and took its course. The result was delightfully moist. In fact some of the delegates went around in a southern California high fog all during the convention.

Next to golf—and even threatening to eclipse the great open spaces—the chief distillation of a convention is liquid, very aqueous, I should say. One might even go so far as to remark that the internal condensation exceeds all scientific measurement.

And the reason—as if reason were necessary, certainly excuse isn't—is not far to seek. It is not the dry year which moves a conscientious conventioner to beers,—I mean tears. Nor is it necessarily the late Sir Volstead's prohibitory restrictions, nor that the latter's arch enemy, John Barleycorn, seems somehow to be one of those theosophical souls, always reincarnating as somebody else—varnish, or shoe polish, you know, or possibly "electric light globes."

Golf, God bless it, isn't an only love. Vamp though it is, the harassed heart of a conventioner is not altogether satisfied with its love putts. And then, too, there are many who have never looked upon her fairways. Is it something in the downright "innards" of a hard working, hard thinking, hard playing delegate—away once in a year from the killing kilowatt—that howls for a chance to upset the works? Is it that under the seductive precipitation of mountain dew, there steals over the burning, feverish prime-mover in the world's electrical progress, over the delegate, if you please, the feeling that:

If a watt is anything, watt is it?

What difference does it make if there aren't any load factors on coffee percolators and ice boxes?

If pole butts get eaten up by termites, why bless 'em, let the poor li'l' suckers have a good feed, watcha crabbin' bout?

If the people want overhead sewers, I mean underground politics, no—you know watt I mean—'stead of power plants, let 'em vote the Water 'n Power Act, see 'f I care.

In different and perhaps less misty moisty words, the delegate seeks to shut down the human dynamo for a week and just let it go hang. As long as he stays above the water line, he is sure to worry over the whyness of the watt, power factors on ice boxes, apartment house for white ants in pole butts, Water and Power politicians and other "varmints."

Complete anæsthesia seems to be the only means whereby the victim may amputate his thoughts. And so he opens up a few "electrical instruments-handle with care" with his cronies, and the fog rolls in from the ocean.

Hold on—is it the only means? Come with this dryad to an investigation of that last and until now least of the byproducts of conventions,—Song, and its half-sister, Humor,—where there may perhaps be found a less "squoogy" means of intoxication and one wholly as complete.

The COAST Outlet
ELECTRICAL CONSTRUCTIONISTS' and DEALERS' NEWS

# A Practical System of Accounting for Contractor and Dealer

By F. V. Mitchell

AFTER all the postings are made into the General Ledger, a trial balance is drawn off by listing the debit and credit balances of accounts Nos. 1 to 52, inclusive, as they appear at the end of the month. The total of the debit balances should equal the total of the credit balances, which constitutes a final proof of the correctness of the postings into the General Ledger for the month.

SUMMARY OF FIXTURE JO

| Job No. | NAME | LOCATION | SELLING PRICE | % | LABOR | % | MATERIAL | % | PR |
|---|---|---|---|---|---|---|---|---|---|
| 476 F | | | 22500 | 100 | 3800 | 17 | 7700 | 34 | |
| 477 F | VARIOUS | | 12500 | 100 | 2100 | 17 | 4400 | 35 | |
| 478 F | | | 17500 | 100 | 3000 | 18 | 6000 | 34 | |
| 479 F | | | 17500 | 100 | 3100 | 18 | 6400 | 36 | |
| 480 F | | | 27500 | 100 | 4800 | 18 | 9700 | 35 | |
| 481 F | | | 22500 | 100 | 4000 | 18 | 8000 | 35 | |
| 482 F | | | 20000 | 100 | 3500 | 17 | 7000 | 35 | |
| 483 F | | | 13800 | 100 | 2100 | 15 | 4100 | 30 | |
| 484 F | | | 10000 | 100 | 3100 | 16 | 6900 | 34 | |
| 493 F | | | 16200 | 100 | 3000 | 19 | 5100 | 31 | |
| TOTALS | | | 190000 | 100 | 32500 | 17 | 65300 | 34 | |

Fig. 2.

As previously stated, it is not necessary to take the Overhead Expense Accounts into consideration in the trial balance for the reason that these amounts are included in the Cost of Goods Sold Overhead Account—No. 52 C, and Work in Process Account—No. 15, having been transferred by journal entries monthly to the debit of the two latter accounts.

The credit entry in effect closing out the Overhead Expense Accounts monthly is made in total to Overhead Expense Clearing Account (group 60 to 73) to eliminate the necessity of making a separate posting to each individual Expense Account, and at the same time to provide an account in the General Ledger that shows the actual amount expended for Overhead Expenses for the number of months in the calendar year to date. The amount in the Cost of Goods Sold Overhead Account—No. 52 C, charged to Profit and Loss will not be the same as that appearing in the Overhead Clearing Account for any given period, as the former will always include the over-

**TABLE II**

**Profit and Loss Statement**

**For Eight Months—January 1 to August 31, 1924**

| | Total | Per Cent | 1 | Per Cent | 2 | Per Cent | 3 | Per Cent |
|---|---|---|---|---|---|---|---|---|
| Sales | $72,500.00 | | $46,500.00 | | $19,000.00 | | $7,500.00 | |
| Less—Return and Allowances | 2,500.00 | | 1,500.00 | | 1,000.00 | | 500.00 | |
| Net Sales | $70,000.00 | 100 | $45,000.00 | 100 | $18,000.00 | 100 | $7,000.00 | 100 |
| Cost of Goods Sold: | | | | | | | | |
| Material | 30,900.00 | 44 | 20,000.00 | 44⅓ | 6,000.00 | 33⅓ | 4,900.00 | 70 |
| Labor | 13,000.00 | 18½ | 10,000.00 | 22⅓ | 3,000.00 | 16⅔ | | |
| Total—Material & Labor Costs | $43,900.00 | 62½ | $30,000.00 | 66⅔ | $ 9,000.00 | 50 | $4,900.00 | 70 |
| Gross Profit | $26,100.00 | 37½ | $15,000.00 | 33⅓ | $ 9,000.00 | 50 | $2,100.00 | 30 |
| Overhead Exp. | 19,100.00 | 27½ | 10,500.00 | 23⅓ | 7,200.00 | 40 | 1,400.00 | 20 |
| Net Profit | $ 7,000.00 | 10 | $ 4,500.00 | 10 | $ 1,800.00 | 10 | $ 700.00 | 10 |
| Percentage of Overhead to Material & Labor Costs | | 43½ | | 35 | | 80 | | 28½ |

Jo FINISHED DURING MAY, 1924

| % | TOTAL PRIME COST | % | GROSS PROFIT | % | OVERHEAD | % | NET PROFIT | % |
|---|---|---|---|---|---|---|---|---|
| 24 | 11√00 | √1 | 11000 | 49 | 87√ | 39 | √√√ | 10 |
| 35 | 6√00 | √√ | 6000 | 48 | √000 | 40 | 1000 | 8 |
| 24 | 9000 | √√ | 8√00 | 48 | 66√0 | 38 | 18√0 | 10 |
| 26 | 9√00 | √4 | 8000 | 46 | 68√√ | 39 | 11√ | 7 |
| 25 | 14√00 | √3 | 13000 | 47 | 1024√0 | 38 | √√√0 | 9 |
| 35 | 12000 | √3 | 10√00 | 47 | 9000 | 40 | 1√00 | 7 |
| 35 | 10√00 | √√ | 9√00 | 48 | 7600 | 38 | 1900 | 10 |
| 30 | 6√00 | 4√ | 7600 | √√ | √17√ | 38 | √4√√ | 17 |
| 24 | 10000 | √0 | 10000 | √0 | 7800 | 39 | √√00 | 11 |
| 31 | 8100 | √0 | 8100 | √0 | 607√ | 38 | √0√√ | 12 |
| 34 | 978 00 | √1 | 9√√00 | 49 | 733√0 | 37 | 188√0 | 10 |

Fig. 2.

PRINT IN BINDING

head on Work in Process at the beginning of the period less the amount of Overhead Expense incurred during the period that is being carried on Work in Process at the end. It is a good plan after making the monthly journal entry transferring Overhead Expense, to total the debit balances of the various Overhead Expense Accounts and verify that it is in agreement with the total credit balance of the Clearing Account to date. This proves the Overhead Expense section of the General Ledger independently of the main section and if there should be any discrepancy in the final General Ledger Trial Balance, it eliminates the necessity of checking the overhead expense accounts.

After the General Ledger Trial Balance is obtained, a Profit and Loss Statement can be drawn off by listing the difference between the final balances and the balances at the end of previous month as they appear in accounts Nos. 50 to 52, inclusive. A Profit and Loss Statement for the number of months in the calendar year to date can also be prepared from the General Ledger by listing the final balances as they appear in these accounts, in accordance with Table II which appears on page 249 of this issue.

In the accompanying table the amount of Sales would be obtained from Account No. 50, Returns and Allowances from Account No. 51, Cost of Goods Sold, Material and Labor, from Accounts Nos. 52 A and 52 B, respectively, and Overhead Expense from Account No. 52 C. From this explanation it can be readily seen that after the General Ledger Trial Balance is obtained, the preparation of such an important form as the detailed Profit and Loss Statement merely entails the copying of the figures from the General Ledger Accounts. The totals of these Operating Accounts Nos. 50 to 52, inclusive, are carried on in the General Ledger from month to month until the end of the calendar year, at which time they are closed out into Capital Account through Profit and Loss. During the calendar year, the difference between the credit and debit balances of these accounts, or the Net Profit to date as shown on the statement is added to Capital Account on the Balance Sheet, an illustration of which will appear in the October 15 issue of the Journal of Electricity.

# Electrical Construction

By E. Earl Browne

IN measuring up the conduit and wire used on the various types of signal systems on a job considerable time can be saved if a separate sheet is taken for each system such as bells, public telephones, intercommunicating telephones, silent signal systems, auto call, fire alarm, clocks, etc., and columns headed with the various conduit and wire combinations to fit the installation such as are shown in Figs. 21, 22 and 23.

In return-call bell systems the preferable scheme is one common battery wire of No. 14 B. & S. and two individual signal wires of No. 18 B. & S. as the chances of trouble are less than if two common and one individual wires are used. A take-off sheet under the former of these two systems would be headed as shown in Fig. No. 21. For public telephone systems it is necessary to provide conduits as follows for the No. 18 B. & S. No. 2 conductor spec. No. 3420 wire required by the Pacific Telephone & Telegraph Company:

| | |
|---|---|
| One pair | ½-in. conduit |
| Two pair | ¾-in. conduit |
| Three pair | ¾-in. conduit |
| Four pair | 1 -in. conduit |
| Five pair | 1 -in. conduit |
| Six pair | 1¼-in. conduit |
| Seven pair | 1¼-in. conduit |
| Eight pair | 1½-in. conduit |
| Nine pair | 1½-in. conduit |
| Ten pair | 1½-in. conduit |
| Eleven pair | 1½-in. conduit |
| Twelve pair | 1½-in. conduit |
| Thirteen pair | 1½-in. conduit |

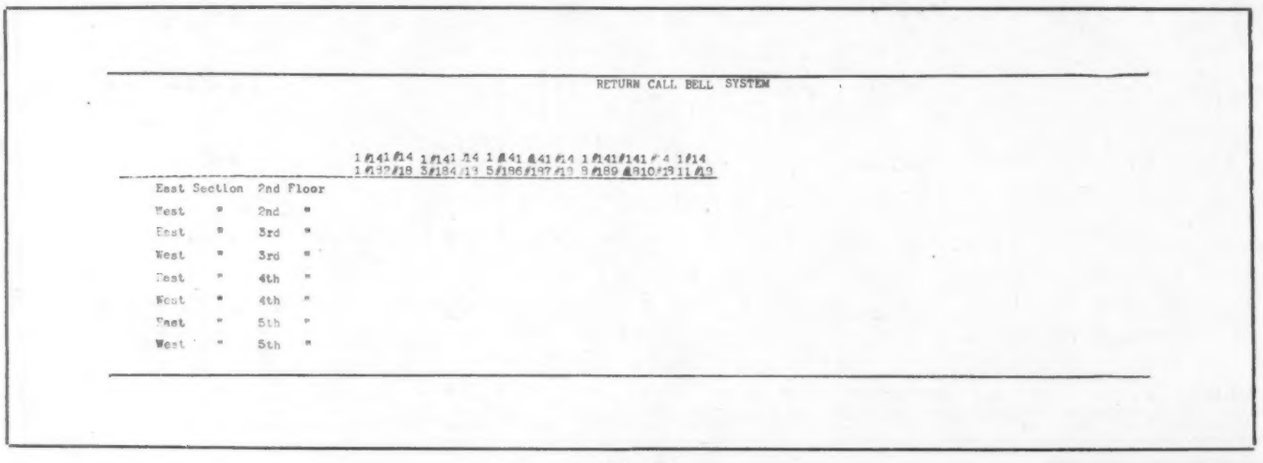



Fig. 21

The sheet for this portion of the work would be headed as shown in Fig. No. 22.

For intercommunicating systems it is generally preferable to use a standard cable with a dry braid if not subject to moisture, or lead encased cable if moisture is likely to exist. The advantages in the use of this material are that the size of conduit is materially reduced and the wires are all paired, vided. A sample of sheet to take care of this installation is shown in Fig. 23.

In the case of wiring for auto call, fire alarm and clocks there is usually a multiple or series circuit run to each outlet except there be a number of clocks, in which case there will be two or more series circuits. In the case of schools, with program clocks and secondary clocks with buzzers in each class room

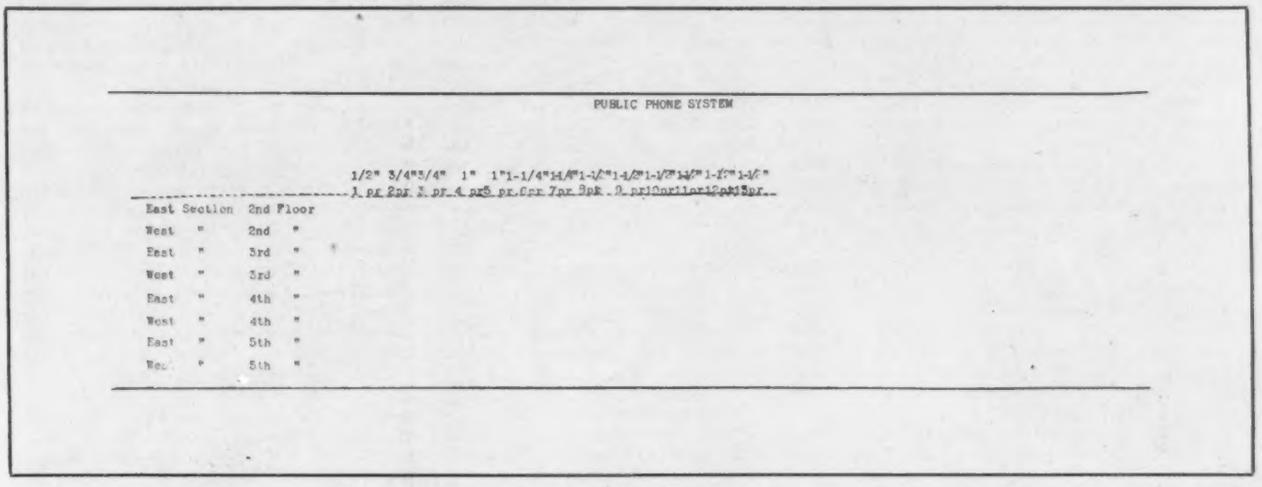



Fig. 22

thereby eliminating all work of testing as would be necessary if the usual twisted pair telephone wire were used.

With this system a single column only is necessary as, of course, the same size conduit and cable is carried from phone to phone. For the silent signal system there will be a number of column headings and assembly and yard gongs, additional wires must be installed in the conduits to provide for these signals in addition to the regular series circuit for the clocks.

The principal thing in estimating on any part of a job is to keep the records so that anyone can take up your estimate sheets if a contract is pro-

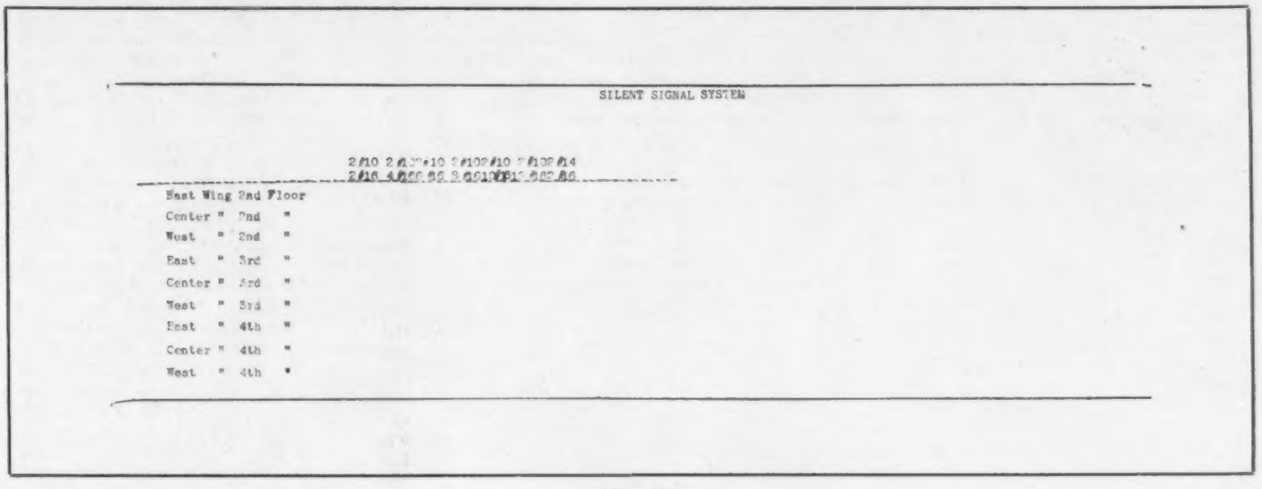



Fig. 23

as it is common practice to use No. 10 B. & S. gage for the current leads from the transformer through all outlets in rooms and wards with No. 14 B. & S. current leads branched to door and corridor signals and No. 16 B. & S. signal wires in both cases. Also the special branches to diet kitchens, head nurse's room, for the elapsed time recorder must be procured and proceed to lay out the plans and assemble the materials. This cannot be done if all the details as above outlined and as explained in previous issues are not kept as a part of the record instead of written on a piece of scratch paper and then thrown away prior to the time that the job is started.

# Annual Convention of California State Association

## Report of Meeting Held at Santa Cruz, Sept. 19-21, Shows Growth of Cooperative Spirit and Value of United Effort

The annual convention of the California State Association of Electrical Contractors and Dealers was held at the Casa del Rey Hotel, Santa Cruz, Calif., Sept. 19-21. Members from all parts of the state were in attendance as were invited guests and others who were interested in the work of the association. The meeting opened on Friday, Sept. 19, registration of arrivals having taken place the day before.

Starting at eight o'clock on Friday morning the annual golf contest was played off. There were thirty entrants and play was spirited and marked by excellent form. C. C. Hillis, Jr., of the Electric Appliance Company, San Francisco, took first place and won the cup for the best play. So close was the contest for second place that four players were tied and had to play off for the place prize. In the final play-off Charles Goodwin, credit manager of the Pacific States Electric Company, San Francisco, was winner by one stroke on the eighteenth hole. The second prize was a choice of one autographed driver or brassie, to be selected by the winner.

There was also a golf contest for the ladies who attended the convention and Mrs. Arthur Dahl won first prize, defeating the next player, Mrs. C. B. Kenney, by two strokes. Mrs. Kenney won, as second prize, an autographed brassie or driver, at her selection. This prize, like the second prize in the men's contest, was donated by "Chubby" Gerhardt, of the Crouse-Hinds Company's San Francisco office.

The sporting contest that excited the most interest was the baseball game between the contractor-dealers on the one side and the jobbers and manufacturers on the other. C. B. Kenney was captain of the former team while G. W. Barker led the latter. After nine innings of brilliant play, during which many spectacular exhibitions of close team work were given, the jobbers and manufacturers won by the close margin of 12 to 11, the winning run being brought in in the last half of the ninth inning with two men out and three men on base. Following the game a live gray goose was presented to the captain of the winning team to assist him in spreading the news of victory. The ball game was marked by many spectacular events, among which were the frequent change of umpires and the entry into the game of a young lady who displayed brilliant playing form but who insisted on running the bases from home to third instead of to first as is customary. The home run made by this player was the only one made during the game and was disallowed by the umpire.

The executive committee meeting was held at ten o'clock on the nineteenth and was marked by a full attendance. President Victor Lemoge presided.

The open business meeting of the convention began at two-thirty on the afternoon of Sept. 19 and was attended by approximately two hundred persons, all of whom were either members of the association or were interested in its work. Some of those present included members of the Electrical Exchange of San Diego and also of the Electrical Exchange of Los Angeles. Prominent among these were Amos Feely, of San Diego, and Psy Geisbush, of Los Angeles.

Clyde Chamblin, president of the California Electrical Construction Company, San Francisco, described the work of the Association of Electragists, International, and told of an unusual opportunity that had been extended to the California association to become affiliated with the larger body. By unanimous vote it was decided to join with the national organization and this action will be taken in the very near future.

Following the address of Mr. Chamblin President Victor Lemoge announced a series of ten-minute talks on subjects of interest to all present. Contrary to the precedent of previous years, when the speakers had been selected from outside the ranks of the association, all of the speakers at this meeting were from the membership.

E. E. Browne, executive secretary of the Electrical Contractors' and Dealers' Association of San Francisco, spoke on Estimating. Among other points Mr. Browne brought out the need for the use of the "contract bid" form for the protection of the contractor. This form of bid requires the signature of the one accepting the bid and is, in effect, a lease contract, the contractor being protected until the full amount of the contract is paid.

Walter Spencer, of the Spencer Electric Company, Oakland, Calif., spoke on Residence Wiring and emphasized the importance of strenuous effort by every contractor-dealer to have all buildings, and particularly residences, properly wired for the fullest possible use of electricity. H. H. Courtright, manager of the Valley Electrical Supply Company, Fresno, spoke on Lighting and Lighting Fixtures and presented some new thoughts for fixture dealers. J. C. Hobrecht, of J. C. Hobrecht Company, Sacramento, spoke on Radio and sounded a warning to electrical retailers. Mr. Hobrecht also gave some pertinent ideas on the marketing of radio by retail electric stores.

C. B. Kenney spoke on Credits and analyzed the situation from the viewpoint of the contractor and of the jobber and pointed out in detail the relationship that should exist between the two. He also made a plea for closer attention to the financial side of the contractor-dealers' business and predicated a company's success only on a proper consideration of this matter. G. W. Barker, associate editor of the Journal of Electricity, gave a short talk on events that have taken place in the Modesto-Turlock Irrigation Districts since the opening of the Districts' generating and distribution system, followed by the entry of the Districts into the retail electrical field. Victor W. Hartley, executive secretary of the California Electrical Cooperative Campaign, gave an outline of the state organization of the Better Lighting Campaign and told of the work that has been done thus far in promoting the campaign in the Twelfth Regional District.

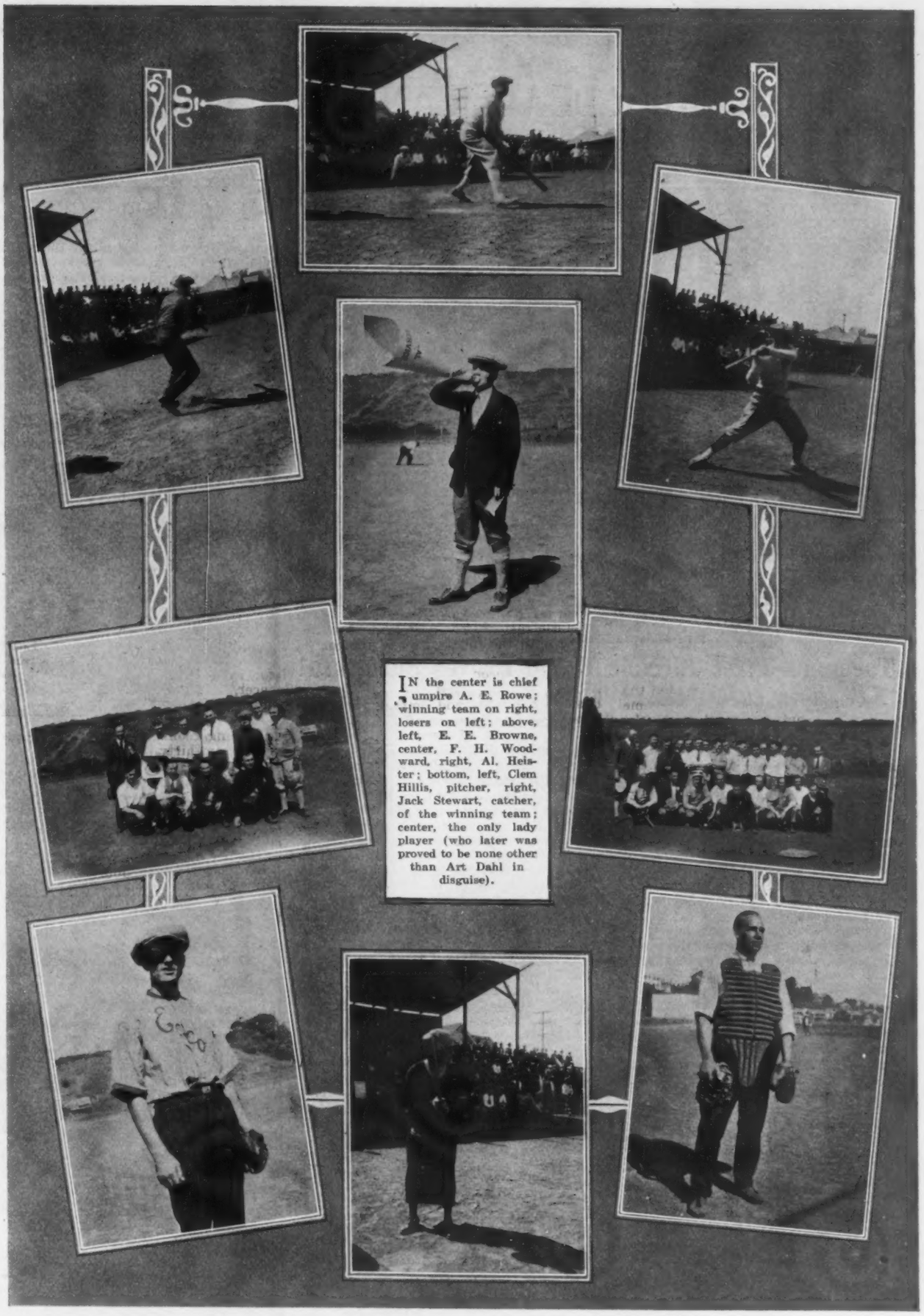
Following the main business meeting a second meeting was held under the auspices of Hugh M. Crawford, sales manager of the Pacific Gas and Electric Company, San Francisco, for the purpose of outlining in detail the plans and progress of the Better Lighting Campaign. This meeting was largely attended and the talk was illustrated with lantern slides.

One of the outstanding addresses of the meeting was that of Reed Hayes, of the Eureka, Calif., Chamber of Commerce. Mr. Hayes told of the activities of the California State Fish and Game Commission to prevent development of the Klamath River power resources. He showed clearly the detrimental effect this opposition to development is working on the entire section of the state that would benefit by an intelligent plan of procedure. Mr. Hayes also gave evidence of the assurance of the Federal Power Commission that the fish of the Klamath would be protected in the event of licenses being granted for power construction and development and pointed out that the action of the California commission is detrimental to the best interests of the whole state.

Following a short talk by H. W. Stitt, city electrician of Fresno, there came the election of officers for the ensuing year. By an unanimous vote Victor Lemoge was re-elected president and the following were elected directors of the association: H. H. Courtright, Fresno; A. K. Carson, Bakersfield; W. A. Murphy, Stockton; J. C. Hobrecht, Sacramento; J. Helfiker, Eureka; H. W. Jacobs, Santa Rosa; Earl Wilson, Napa; Ed. Martin, San Francisco; Fred Doerr, San Jose; Walter Spencer, Oakland, and Walter Cox, Santa Cruz.

The annual banquet was held in the main dining room of the Casa del Rey Hotel at six-thirty, Saturday, Sept. 20. More than two hundred and fifty people attended. President Lemoge officiated as toastmaster and introduced the various speakers. He also made a brief report on the activities of the association during the past year. Arthur Dahl presented the cups won during the sports contests. The Journal of Electricity cup for attendance was presented to Roy Phelan, secretary of the Electrical Contractors' and Dealers' Association of Sacramento. This cup is presented annually to the association having the greatest membership attendance at the convention and has been won by the Sacramento organization for the past four years. J. T. Stewart, of the Stewart Electrical Manufacturing Company, San Francisco, offered a trophy to the captain of the losing team in the baseball game and this trophy was presented by G. W. Barker to C. B. Kenney, who was captain of the contractor-dealers' team. The trophy will be awarded annually. Clyde Chamblin was the speaker of the evening and gave a strong talk on the application of the golden rule to business and on being square.

As a testimonial of appreciation to President Lemoge for the splendid progress made by the association under his direction, presentation was made to Mrs. Lemoge of a beautiful silver set. Mrs. Lemoge made a short address of thanks.



IN the center is chief umpire A. E. Rowe; winning team on right, losers on left; above, left, E. E. Browne, center, F. H. Woodward, right, Al. Heister; bottom, left, Clem Hillis, pitcher, right, Jack Stewart, catcher, of the winning team; center, the only lady player (who later was proved to be none other than Art Dahl in disguise).

# JOBBER, DEALER AND SALES AGENT

Exterior of first Tacoma electric home. Over thirteen thousand people inspected the modern electrical devices shown.

## Tacoma's First Electric Home Proves Successful

### Completely Electrified Home Visited by 13,424 Persons During Twelve-Day Period It Was Open for Inspection

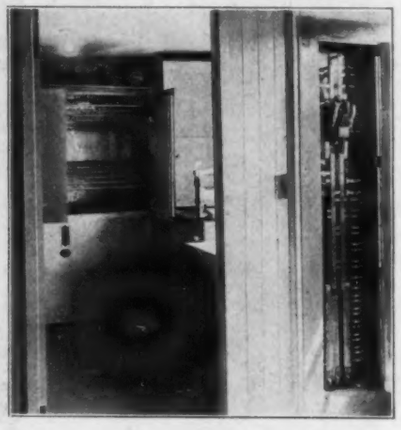
After exhibiting and explaining the advantages of the electrified home to 13,424 guests, in a period of twelve days, the electric home committee of the Electric Club of Tacoma, Wash., on July 3 closed the first electric home exhibited there. Interest in the home had been so intense and results obtained so satisfactory that the club appointed a permanent electric home committee and plans are now being made for next year's home.

Tacoma's first electric home was financed, built and furnished in much the same manner as has been the case in all homes exhibited in the West. The house was built specially for the exhibition by a Tacoma contracting firm which agreed to take the responsibility of later selling it. Wiring supplies and devices were donated by the various local jobbers, and these same firms also supplied the electrical appliances for the duration of the exhibit. All furniture, general furnishings and miscellaneous items were secured from local dealers who cooperated with the electric home committee.

To prepare the public of the city for the opening of the home, newspaper advertisements and inserts in monthly power bills were used extensively by the committee. Funds for this advertising were secured from the jobbers. The advertising fund accumulated also provided for the preparation of a 36-page booklet designed to be presented to all visitors at the home. This booklet was entitled "Making Every Dollar Count When You Buy a Home," and was distributed during the time that the home was open to the public. This piece of publicity was gotten out in the form of a handbook and presented in a convincing manner the reasons for owning a home. Suggestions were given as to methods of financing, planning and building a home and in the text matter the electric home was completely described as one that could be used as a model. Needless to say, this book attracted considerable attention and was well received by the home visitors.

The home was open to visitors daily from 2 to 10 p.m. and during that time demonstrators, supplied by the jobbing houses interested in the exhibition, were on hand to take parties through the building. The original plan was that the "open house" period should extend from June 22 to June 30, inclusive, but the exhibition proved so popular that the home was kept open until July 3.

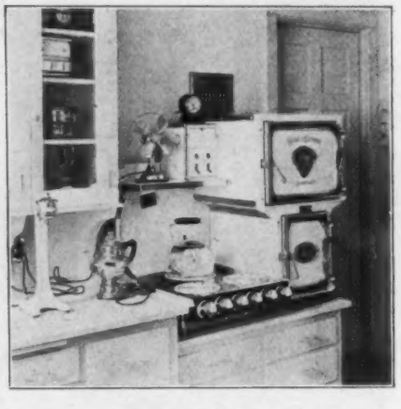
The home displayed by the Tacoma electric home committee was completely modern in all respects and electrical devices were largely responsible for this characterization. From the basement where an electric furnace was installed to supply heat for the home, through the kitchen where an electric refrigerator kept food in good condition and an electric range cooked it, to the master's bedroom where a three-way switch controlled all of the ceiling luminaires in the house, everything was electrified. The advantage of these various devices were demonstrated and explained to the visitors to the Dutch colonial type home, with the result that many inquiries concerning electrical installations have been received by the electrical industry in Tacoma. One of the interesting features of the house



Laundry showing the control panel with twenty-eight circuits.

was the control panel, located in the basement, which had twenty-eight circuits running into it. Thirteen of these circuits were for lighting while fifteen were for power.

The home was a complete success from the point of view of the electrical



The kitchen where everything was electric. Furnace control switches may be seen at the right.

industry and the chairman of the first electric home committee, B. R. Nichols, City of Tacoma Light Department, has been named chairman of the permanent electric home committee.

## Small Town Dealer Advertises Service That Sells

The service that the electrical dealer can give to purchasers of radio devices is one of the principal factors that lead the public to buy from him instead of from any other class of retailer. It is evidently then up to the electrical dealer to service these radio customers to the fullest extent possible.

The mapping of a service program is not the only thing, however, that is necessary for the success of the dealer. Some means must be employed to inform the buying public that this service is being offered.

Building its business on service, the Taft Electric Company, Taft, Calif., has found a most satisfactory means of advertising the fact that it does not only sell electrical devices but when the sale is made service is assured to the purchaser. To put this information before the people of Taft, J. S. Miller, manager of the company, has used a small delivery automobile, known as the "Radio Service Car." This machine is of the standard enclosed commercial type but has been specially decorated to suit the needs of the Taft Electric Company.

Radio advertising is used to decorate the sides and rear of the service car and an aerial extends over the entire top of the body. Bright colors are used in connection with the advertisements, thus attracting more attention to the car.

The car in addition to being a constant reminder that the Taft Electric Company is a dealer in radio devices is also used in servicing radio sets. The fact that the radio service car is frequently seen calling at the homes of radio owners again calls attention to the company's service policy and no doubt leads to considerable business for the firm.

To tie the radio service car in with the direct-by-mail advertising of the company, postcards carrying the picture of the car are sent to all prospects of the company. This tie-in has been found to be well chosen.

The Taft Electric Company has also paid attention to details in the arrangement of its store. In the portion of the store devoted to displaying and demonstrating radio sets comfortable chairs have been provided and by keeping only complete sets in this department the customer's attention is focused upon the particular set that is being demonstrated. This arrangement has been found to be well suited to the needs of the company.

Radio Service Car of the Taft Electric Company

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## SHOUTING AND SAYING SOMETHING

### Æsop's Tale Retold

By JOE OSIER

**The tale** of the shepherd boy, who established a reputation by squawking "wolf" when he became lonesome and had nothing else to do—

**Which yarn** was released to the daily and Sunday papers some few thousand years ago by the famous fictionist, Æsop—

**Is brought** to my mind every time I hear a man of the Electrical Industry complaining about high costs of merchandise, cut-throat competition, poor collections and bum business generally.

**This practice,** indulged in by too many smart men, has been appropriately named "wolfing" and time and again, it has been proved that the business man who stands in front of his place of business and yells "Wolf! Wolf!" loud enough and too often, soon has no place to stand in front of and—

**Is forced** to join the pack of malcontents who carry the stigma of "once was" and "used to be."

**Æsop, in** his fable, which has survived throughout the ages, despite the thousands of Jazzy Gems and Juicy Jewels which have been circulated, relates: "And then, after he had fooled them many times, they wearied of his pranks and failed to respond when the wolf did attack."

**Does not** this tale fit the case of some alleged business man you know? Yea, verily, like the sausage skin.

**Ol' John Goofus,** a contractor-dealer who retails merchandise electrical, stands in front of his "tumbled-down shack in Athlone" or some other place and, through a loud speaker bellows to the world that—

**Prices are** shot to the naughty word —pirates are scuttling his ship and he is being sunk without warning; men of the trade are secretly hacking at his vitals and the—

**W.K. Wolf** is banging at his back door—and—

**"Shall we drop our business and help him?"**

**What is** the answer? There is none because his former friends in the game have heard the tune before and have grown aweary of the sing-song sameness of the symphony.

**They prefer** listening to the songs of cheer sung by the up-and-doers who are carrying on, garnering the glue and making a go of it regardless of changing conditions.

**And so,** the hopeless, helpless herder of misconceived delusions, when the real wolf does come, cries for help in vain and the bones of his business glisten in the sunlight and passers-by shudder and hurry on.

**So this** is the moral: Never shout "wolf" until you are forced to and then—

**Mean it.**

# INDUSTRIAL NEWS

## Jobbers' Convention Disrupted by Del Monte Fire

### Main Building of Famous Resort Is Totally Razed During Quarterly Meeting of Pacific Coast Jobbers

By Chairman of the "Open" Meeting

Sept. 25 opened what was destined to be the most notable quarterly meeting ever held by the Pacific Coast Electrical Jobbers' Association. This meeting had been postponed many times. As a matter of fact, it was scheduled to have taken place at Coronado during the annual meeting of the Pacific Coast Electrical Association. This idea having proved impractical, the meeting was postponed month by month until finally accommodations were secured at the usual meeting place, Hotel Del Monte, Del Monte, Calif.

The initial meeting took place on Thursday morning, this being a business meeting and therefore closed to all other than members of the association. On Friday morning—a closed meeting—there were two papers presented by men outside of the association. Walter C. Heston, Pacific Coast editor of Electrical World, presented to the members of the association the results of a survey covering eight cities in the United States by which it was determined who were distributing electrical appliances. Mr. Heston was followed by George C. Tenney, managing editor of the Journal of Electricity, who presented the results of a survey in seven cities of various sizes in Washington, Oregon, Utah and California covering the Pacific Coast phase of the same subject discussed by Mr. Heston.

The discussion that followed was spirited and illuminating. Mr. Tenney's paper will be published in full in the Oct. 15 issue of this publication so a review at this time is not necessary, while Mr. Heston's paper was based upon matter which had appeared serially in Electrical World several months ago.

Following the meeting a rising vote of thanks was tendered to Messrs. Heston and Tenney for the excellent work they had done in this connection. It was determined further that the jobbers' association would arrange for the distribution of a number of copies of the discussions to members, with the suggestion that they make these papers the basis of a series of sales meetings within their own organizations. This would aid salesmen to become better informed as to the present day tendencies toward the retail distribution of electrical appliances and be able to meet changing conditions within the trade more intelligently. Distribution of the papers will be in charge of Albert H. Elliott, secretary of the association.

Following this meeting the annual golf tournament began at Pebble Beach course. Friday night the usual evening festivities were in order. The members indulged in informal dancing and conferences of one kind or another until the wee small hours of the morning. About 2:30 a.m. the smell of smoke in the main building just over the office floor was noticed. Carl Stanley, manager of the hotel, was awakened and he started to investigate. Ray W. Murphy, manager of the Westinghouse Lamp Company, San Francisco, accompanied Mr. Stanley to the upper stories, each man carrying a fire extinguisher, and their investigation showed immediately that the fire, which had started near the roof, was already beyond control. The next problem was to arouse the guests and get them out of the hotel to places of safety. In this work Messrs. Ray W. Murphy, C. C. Hillis, H. E. Sanderson, W. S. Berry, W. M. Deming (who saved all the association golf trophies, including the famous Copper Cup) and many other members of the electrical fraternity played distinguished parts.

An event that was strangely fortuitous occurred. Roscoe Oakes, vice-president and Pacific Coast manager of the National Carbon Company, had brought with him a moving picture machine, which he had used that afternoon taking photographs of a number of the men of the association while engaged in their strenuous athletic endeavors on the golf course. At the alarm of fire Mr. Oakes rendered heroic service in helping to arouse the guests and apprise them of their danger. Although his room was in the main building which was first attacked by the fire, he managed to save the greater part of his personal belongings including the moving picture machine and several hundred feet of film. At four o'clock in the morning, after everybody was safely out of the hotel, Mr. Oakes set up his camera and obtained a wonderful photographic record of the fire at its height and on down to the falling of the last wall that marked the end.

As the alarm spread, the prearranged fire signal of six blasts from the power plant siren proclaimed to the slumbering and non-slumbering guests that a great disaster had overtaken this famous old resort and that all had better not stand upon the order of going but get out as quickly as possible. The efforts of Mr. Stanley and the entire hotel staff proved so successful that every guest was aroused and was enabled to make his or her way to safety on the lawns about the old building without injury. Many of those in the main building had little time in which to make their escape, and therefore lost most or all of their personal belongings. Those in the two wings were more fortunate, for ample time was given them in which to pack—although the packing was in many cases of a very sketchy nature. The shelter of trees about the lawns provided impromptu dressing rooms where guests were able to add finishing touches to toilets which were rather hastily begun under the conditions of stress and excitement. While the embers were still blazing and smoking fitfully Mr. Stanley and his staff opened temporary business headquarters at the entrance of the left wing, and while, at that time, namely, 5:30 a.m., he was hardly able to offer the slogan of "Business as usual," yet before noon of that day the remains of old Del Monte were functioning to a certain degree. Guests were being taken care of in both the west and east wings, and meals were being served at the golf house at No. 1 course.

The fear of fire has always been more or less present at the old Del Monte hotel. This structure was built in 1887, rising above the ruins of a former wooden building which was built in 1860. Now of course, beyond a doubt, the old Del Monte will be succeeded by a modern steel and concrete structure which will stand as a permanent monument to the wonderful traditions of this far-famed resort. Nevertheless, at the passing of the old structure, which had stood for so many years, a very definite something undoubtedly has been destroyed. The atmosphere and associations of the old place cannot help but be lacking in any new building, no matter how magnificent or modern it may be. Nevertheless, the fame of Del Monte rests upon something more definite and more substantial than a mere inanimate building. It typifies perhaps more than anything else in the State of California the spirit of the pioneers and the traditional hospitality of the West. That will continue, as succeeding generations of Californians will tell to their children and their children's children the story of Del Monte, the best loved playground in the world.

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**Correction Note.**—In the article "Electric Power in the Oil Fields," by H. N. Carroll, published in the Sept. 15 issue of the Journal, Table III on page 196 should have been captioned, "Cost of Pumping Wells with Individual Motors." These data were compiled by two of the larger companies operating on the P-5 schedule.

## Soda Point Plant Is Completed by Utah Public Utility

Work has been completed on the Utah Power & Light Company's power development at Soda Point, on the Bear River, near Alexander, Idaho. This new plant, with an installed capacity of 14,000 kw., is now operating as a part of that company's hydroelectric system.

Actual construction work on this project, with the constant employment of about 600 men, has been under way for the past year and a half. Preliminary engineering work and drilling for bedrock began in the summer of 1922. Two General Electric vertical units of 7,000 kw. each, with Allis-Chalmers turbines, are installed in this plant, and its construction throughout embodies the most advanced features in engineering design.

The dam is 80 ft. in height above the water surface, and about 110 ft. above the deepest part of the foundation. It is 518 ft. long across the top and contains about 45,000 cu. yd. of concrete. At the bottom it has a thickness of 80 ft. and at the top 10 ft.

The storage reservoir is about five miles long and averages three-quarters of a mile in width. At its maximum high level it will extend to a point opposite the town of Soda Springs. This reservoir contains about 12,000 acre-ft. of water, and becomes an important secondary storage reservoir to augment that of Bear Lake, thus increasing the advantages to be gained in the Intermountain section through water conservation and equalization of stream flow.

## New Steam Unit to Be Installed at Young's Bay Plant

Practically doubling the installed capacity in generating equipment maintained for supplying the Astoria, Ore., district of the Pacific Power & Light Company, Portland, the company is installing a 5,000-kw. steam unit at its new plant on Young's Bay. The new unit will be a General Electric Company, Curtis type, 11,000-volt turbo-generator, with Wheeler condenser and other auxiliaries. No additional boiler capacity is needed, and the estimated cost of the improvement, which is to be completed before the end of the year, is $200,000.

The principal fuel burned at the Young's Bay plant has been changed re-recently from oil to hog-fuel. To do this, a receiving dock was built on the bay adjacent to the plant, and a hoist with clam-shell bucket for unloading was installed. A conveyor, consisting of a cable with disks attached, was erected to carry the fuel to the boilers where dutch ovens were installed supplementing the oil burners. Fuel is delivered to the dock from near-by lumber mills by barge. A supply of oil is kept on hand for emergency.

The original installation at the Young's Bay plant was 3,000 kw. and to supply local demand power was purchased from the Hammond Lumber Company. The Hammond plant was destroyed by fire in 1922 and later that year Astoria was swept by fire. Since the fire the Young's Bay plant, supplemented by the old Astor Street plant with a capacity of 1,575 kw., has been carrying the load. The rebuilding of the city has necessitated the installation of the new unit.

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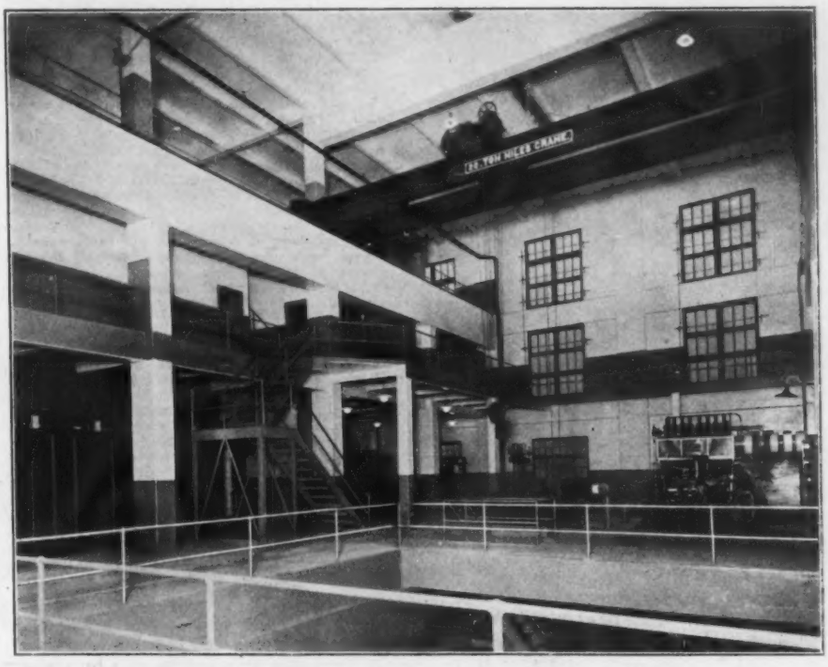
**Lectures on Better Lighting Are Prepared.**—The Lighting Educational Committee has prepared a series of five lectures designed to be presented before various classes of audiences. The lectures call attention to the Better Home Lighting Contest and give suggestions for the better lighting of homes. Two of the lectures are designed to be used without charts, two with charts and one with slides. The charts and slides may be secured from the Society for Electrical Development.



Interior of Young's Bay plant, Pacific Power & Light Company, in which a new 5,000-kw. steam unit is to be installed. The unit will be located in the pit in the foreground.

## Arizona Republican Nominee for Governor Favors Compact

Claiming that cooperation should be the slogan for the settlement of the Colorado River problem, Dwight B. Heard, prominent business man of Phoenix, Ariz., with a long record of public service, has received the Republican nomination in the gubernatorial race in that state as an opponent to Governor George W. P. Hunt, Democrat, incumbent who has been renominated. Mr. Heard's platform, in opposition to that of Governor Hunt, calls for the securing of endorsement of the Colorado River Compact by Arizona legislation and the placing in effect of this document when definite agreement between the states of the lower basin and approval by the Federal Congress shall have been secured.

Mr. Heard has pledged his support to bring about, with the least possible delay, development of the Colorado River for the benefit of the people of Arizona. In his opinion such a plan should include first a vigorous effort to secure from the federal government a direct appropriation for flood control at such a site on the Colorado River as federal engineers might approve. Second, Mr. Heard holds that there should be an effort to secure endorsement of the Colorado River Compact by Arizona and in formulating such an agreement reservations should be made for such proportion of the available water of the Colorado River as would insure irrigation and development of all lands in Arizona which could be reclaimed at reasonable cost now or in the future. In this connection he desires to provide for the payment into the treasury of the State of Arizona of the proceeds of a production tax on hydroelectric power, generated at sites wholly or partly within Arizona by public or private agencies, and delivered and used outside the state. Thirdly, Mr. Heard proposes to secure the execution of an arrangement which shall fully protect Arizona's rights to the use of Colorado River water against any future appropriation of this water for lands in Mexico. The fourth proposal of the Republican candidate is that legislation be passed which would give Arizona the right to tax hydroelectric works developed on the Colorado River by private interests on federal as well as privately owned lands.

Mr. Heard recently gained attention through his plan for a cooperative construction project on the Colorado in which all interests would unite with rates and methods of service under public control.

Observers in Arizona report that while the state is strongly democratic Mr. Heard has a fair chance of election since the people are tired of Governor Hunt's continuous rule.

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**California Site Applied for by Ventura Power Company.**—An application for a preliminary permit has been filed with the Federal Power Commission by the Ventura Power Company of Wilmington, Del. The application covers a proposed project in Piru Creek, a tributary of the Santa Clara River in California. It is proposed to erect two dams, one 210 ft. and the other 200 ft. in height, so as to create reservoirs of 53,000 acre-ft. and 22,000 acre-ft. respectively.

## Two New Maps of Oregon Issued by Geological Survey

Continuing its plan of furnishing as much geographical information as possible to the general public, the United States Geological Survey has issued two maps of the State of Oregon, on the scale of eight miles to the inch. One of these maps shows the location of all precise and primary level lines in the state, including those run by the Geological Survey, the Coast and Geodetic Survey and the Reclamation Service, with reference numbers indicating where detailed information concerning the elevations may be secured. The other map gives the location of all triangulation points located in the state, as well as the location of all the primary transverse lines that have been completed in Oregon. This map also gives, by suitable indication, the publication in which the exact latitude and longitude of all the points in question may be secured.

The maps are intended primarily for engineers, particularly those having occasion to use government bench marks. It is understood that the maps are not for sale, but persons engaged in engineering practice, who have sufficient use for them, may be able to secure copies by applying direct to the United States Geological Survey, Washington, D. C.

## Changes in Personnel Announced by Edison Company

Changes in the organization of the commercial and sales departments, effective as of Sept. 9, have been announced by the Southern California Edison Company, Los Angeles, Calif.

W. L. Frost, formerly manager consumers department, has been appointed

W. L. FROST

general commercial manager. He will have supervision of all district offices and their employees, and all matters pertaining to promotions and transfers, advertising, complaints regarding service, maintenance of properties, subscriptions and donations, general instructions and information will be referred to him. Mr. Frost has been in the service of the Edison company twenty-four years, having progressed from meter reader to groundman, lineman, bookkeeper, collector, chief clerk, power salesman, assistant district manager, district superintendent's assistant, purchasing agent, district manager and assistant to the vice-president.

A. W. Childs, who has held the title of manager commercial department, has been made general sales manager. Under his jurisdiction will come all matters pertaining to the selling of electricity and current-consuming appliances and devices. This includes selling plans, the general direction of salesmen and all questions pertaining to business development. He will also have general supervision of credits and collections and employees connected with that work and will approve all applications for extensions. Mr. Childs

A. W. CHILDS

entered the employ of the old Edison Electric Company, and has served in the capacities of district manager, assistant general agent, and superintendent of sales. He has also been chairman of the advisory committee of the California Electrical Cooperative Campaign and chairman of the commercial section of the Pacific Coast Electrical Association.

W. C. McWhinney has been named general business agent and will have assigned to him special work in connection with the study and inspection of certain conditions in district offices, with the idea of stimulating economy and bringing about more efficient operation. Mr. McWhinney was formerly in the employ of the Pacific Light & Power Company where he was engaged on work in connection with the development of the early units of the Big Creek project. He was later transferred to the sales department and was assistant sales manager at the time of the merger of the Pacific Light & Power Company with the Edison company. During his service with the latter com-

W. C. McWHINNEY

pany he has filled the positions of district manager, assistant superintendent of sales and commercial statistician.

The titles of "manager consumers department," "manager commercial department" and "commercial statistician" have been abolished.

## Bids on Construction of Cushman Project Are Received

Low bid on the construction of the power house for the Lake Cushman project of the City of Tacoma, Wash., was submitted by A. Guthrie & Company, Portland, Ore., the amount being $195,190. Other bids submitted were by Walesby Construction Company, Tacoma, $195,930, and J. B. Murphy, Seattle, $198,757. The building will be 74 x 133 ft., of reinforced concrete, with hollow tile partitions and tubular steel doors and sash. Award or rejection of the bids will be made in the near future by Ira S. Davisson, commissioner of light and water.

All bids submitted for the construction of the Narrows transmission span were rejected with the exception of that of Ward & Ward, Tacoma, at $33,000 for the concrete footings and anchors for the towers. This span is to be 6,240 ft. long, and will carry the power from the Lake Cushman plant across the Narrows of Puget Sound. It was estimated to cost $250,000 and the best combination total that could be figured from the bids submitted was $260,000. Commissioner Davisson believes that a saving to the city can be effected by a call for new bids.

## Report Attack Is to Be Made on Federal Power Commission

Reports from Washington, D. C., state that an attack on the Federal Power Commission is to be made by public ownership advocates. A dispatch from one correspondent reads as follows:

An attack on the Federal Power Commission is about to be launched by the advocates of public ownership of utilities. The movement has its principal support in California, where it is contended that the Commission is entirely hostile to public ownership and has nullified the priorities granted in the Act to municipalities.

It is contended further that the attitude of the Federal Power Commission, revealed at the hearings on the Swing-Johnson bill, is that the whole conception of the Boulder Canyon dam, on the Colorado River, is an experiment in public ownership. From what is known of the attitude of the Commission it is thought the foregoing assumption is correct. It is known that the Commission has learned that it is the ambition of certain individuals to build up in California a hydro commission like that in Ontario. If California thinks it can find a Sir Adam Beck and is willing to undertake a development on the Colorado which will fit into a general plan for the utilization of the full resources of the stream, and would be willing to finance its experiments itself, it is regarded as entirely probable that the Federal Power Commission would be willing to grant the necessary license and assist in every way to make the development a success. It is very evident, however, that the financing out of the federal treasury of developments within states conflicts with the policy of the Commission. It also is very evident that the Commission believes that private development of power is more likely to be successful than are municipal or state schemes, due to the fact that extensions, rates and policies would be subject to political control which frequently deviates from the path which would be chosen by private enterprise. It is believed the three secretaries making up the Commission would hold similar views with regard to any excursion of the public into business. There is every reason to think, however, that they would be perfectly willing to aid any municipal or state project were the public agency to be ready to finance its own project.

**Colorado Dam Sites Being Surveyed.** —Two dam sites above Pierce's Ferry, on the Colorado River, and several others between Pierce's Ferry and the El Dorado dam site at the lower end of Black Canyon are to be examined and surveyed by a party of eight men headed by E. C. LaRue. The party left Kingman, Ariz., Sept. 10.

## Chambers of Commerce Condemn Water and Power Act

The boards of directors of the Chambers of Commerce of Los Angeles, Santa Paula, Fullerton and of Ventura County have recently passed resolutions condemning the proposed California Water and Power Act that will come before the voters of that state Nov. 4. The resolutions adopted by the boards are approximately the same, the one adopted by the Los Angeles Chamber Commerce being typical. It reads as follows:

### Resolution

**Whereas,** the Los Angeles Chamber of Commerce, through its various expert committees has for some time past been giving a most careful study of this measure, and

**Whereas,** these expert committees have reported to the Board of Directors their findings in the matter, which findings have received the unanimous approval of the Board of Directors, to wit:

That the Los Angeles Chamber of Commerce Board of Directors is opposed to the enactment of the Water and Power Act as inimical to the best interest of the state;

As tending to destroy private initiative;

As vesting practically unlimited powers in the Water and Power Board with no adequate safeguards and checks;

As tending to create a political machine of tremendous magnitude;

As creating a staggering indebtedness, the deficits on interest of which are payable from the general fund;

As permitting the officials of municipalities in collaboration with the Water and Power Board to thwart the will of the people of such municipalities where by vote they may have refused to approve bond issues for the extension of municipal power development.

**Therefore, Be It Resolved,** that this resolution be adopted as expressing the opinion of the Board of Directors of the Los Angeles Chamber of Commerce.

LOS ANGELES CHAMBER OF COMMERCE.

## Rate Reductions Are Announced for Washington Towns

New tariffs affecting certain schedules of rates in Chehalis and Kelso, Wash., have been published by the Puget Sound Power & Light Company, Seattle, Wash. At Chehalis the new schedule in domestic and commercial lighting will make no change in the rates for those customers using 40 kw-hr. or less per month, and will make a slight increase in the rate for consumption between 41 and 99 kw-hr.; but will make a marked reduction in the price of all current consumed in excess of 100 kw-hr. per month. At Kelso the new tariff makes an average reduction of about 10 to 12 per cent in residential and commercial lighting and cooking.

The Longview Public Service Company, Longview, Wash., has put into effect a reduction in the residential and commercial lighting and cooking schedules for Longview approximately equivalent to those under which Kelso is served.

## Electrical Sales Possibilities Analyzed by Government

The East North Central section of the United States comprising Ohio, Indiana, Illinois, Michigan and Wisconsin leads as a potential market for electrical merchandising lines, according to an engineering analysis of the relative sales possibilities of different areas recently released by the Department of Commerce.

Based upon definite statistical data, modified as specifically as possible according to varying conditions in different sections of the country, the study shows that New York ranks first with a ratio of a potential 11 per cent, of the total electrical merchandising business of the country, followed by Pennsylvania with 8.5 per cent; Illinois, with 7.3 per cent; California, with 6.3 per cent; and Ohio, with 6.2 per cent.

In each case the percentage shown is that portion of the country's 100 per cent electrical merchandising business that should normally be expected from each of the different states.

It is pointed out that the desire to use modern home comforts, or what is termed "inclination to purchase" electrical goods for household or individual use, varies considerably in different states and is generally lowest in the east and southeast while it increases gradually from there to the Pacific coast.

The final results of the survey—an average of the analysis of factors affecting purchasing power and distribution for the West are summarized by the Department of Commerce as follows:

| | |
|---|---|
| Mountain | 3.5258 |
| Montana | .7607 |
| Idaho | .5213 |
| Wyoming | .1999 |
| Colorado | .9199 |
| Utah | .4665 |
| Nevada | .1663 |
| New Mexico | .2175 |
| Arizona | .2737 |
| Pacific | 9.0450 |
| Washington | 1.8549 |
| Oregon | .8896 |
| California | 6.3005 |

This analysis, undertaken jointly by the electrical and domestic commerce divisions of the Department of Commerce, is intended as a guide whereby manufacturers may determine the possibilities for market expansion in a given territory, and how much sales effort a territory might justify. It is believed that the information contained in this booklet, "Domestic Market Possibilities for Electrical Merchandising Lines" will be of interest and value to anyone concerned in the marketing of electrical household appliances. The price is five cents.

**Radio Conference to Be Held Oct. 6.**—The third National Radio Conference will be held in Washington, D. C., Oct. 6 instead of Sept. 30 as originally announced. The meeting will be opened by a statement by Secretary of Commerce, Herbert Hoover.

Let's win this $15,000 home
Home to be given FREE!
Shearer ELECTRIC CO.
Full Information Regarding This Contest
Prizes
Entrance Blanks, Etc.
Furnished on Request
Nevada Machinery & Electric Company
Home Lighting Contest Now On
school Boys! school Girls!
Enter the Home Lighting Contest at Once
Gill Electric Co.
Get a Lighting Primer FREE!
In order to enter the contest you must first get the Home Lighting Primer. The Primer will explain all details of the contest, which is open to any boy or girl over ten years of age who attends any grammar or high school. You can secure this primer by registering for the contest at the store of
MARTINEZ ELECTRIC COMPANY
19 East Second Street—Phone 630-W
Home Lighting Contest Begins today
The HOME LIGHTING PRIMER
School Boys! School Girls! Get This Primer Free!
This is the day to enter the home lighting contest. Here is the way to do it!
1. Get a registration card at our office or at any electrical store.
2. Fill out card and return to electrical dealer or Power Co. office.
International Prizes
$15,000 Model Electrical Home
Boys and Girls, here is a chance that comes only once in a lifetime. Each boy or girl over ten years of age who is attending public, private or high school has an opportunity to win a prize. Don't forget to enter this contest today
Try for ten cash prizes for this district—one to be given in addition to the national prizes.
These prizes run from $5.00 up to $500. Call today at the office of the
Truckee River Power Company
and have all the details explained.

**Full-page newspaper advertisement, calling attention to the opening of the Home Lighting Contest that was presented to the public of Reno, Nev., by the electrical industry of that city.**

## World Power Meeting Described for San Francisco Men

General characteristics and the high spots of the World Power Conference held in London, England, were related to the San Francisco section of the A.I.E.E. at its first meeting of the season on Sept. 26, by C. E. Skinner, assistant director of engineering, Westinghouse Electric & Manufacturing Company. Mr. Skinner, in his interesting review of the conference, touched upon the salient statements in the papers presented and called attention to the fact that the power surveys presented were of particular importance. The potential power resources of several countries were given considerable attention.

Of interest to hydroelectric engineers was Mr. Skinner's comment concerning studies as to the relation of wet and dry seasons. In this connection he stated, "Recent announcements would indicate that a study of the variation in the sun's heat may in the future form a very important part of our estimation of potential water powers. If the measurement of the sun's heat will permit us to predict in general, weather of the world two years in advance as has been suggested, then we can prepare for drouths and excess precipitation instead of being taken unawares as at present."

## Palace of Electricity to Be Shown at Exposition

The Palace of Electricity shown at the California Industries Exposition last year, proved so popular both from the point of view of the consumer and the trade, that it has been decided to repeat the feature at the exposition which will be held this year from Oct. 18 to Nov. 1.

A special committee of the San Francisco Electrical Development League, under the direction of Clyde L. Chamblin, has been organized and arrangements are practically completed. More than half of the space allotted to the electrical exhibit has been sold, as was shown at a luncheon meeting given on Sept. 17 at the Palace Hotel by the exposition authorities to members of the electrical industry of San Francisco. Specially designed booths will be furnished this year and the illumination will be of unusual character.

It is anticipated that the electrical exhibit this year will far surpass that of previous years and that the attendance at the Palace of Electricity will break even the record of last year.

**Sub-Committee Heads in Technical Section Appointed.**—H. H. Schoolfield, Pacific Power & Light Company, Portland, Ore., chairman of the Technical Section of the Northwest Electric Light & Power Association, has announced the following appointments as chairmen of the sub-committees of that section: accident prevention, J. B. Fisken, Washington Water Power Company, Spokane, Wash.; hydraulic power, R. L. Hearn, Washington Water Power Company; inductive co-ordination, George E. Quinan, Puget Sound Power & Light Company, Seattle; meters, R. E. Thatcher, Puget Sound Power & Light Company; electrical apparatus, R. R. Robley, Portland Electric Power Company, Portland; underground systems, R. S. Carrol, Portland Electric Power Company; prime movers, O. L. LeFever, Northwestern Electric Company, Portland; overhead systems, Z. E. Merrill, Mountain States Power Company, Albany; cooperation with regulatory bodies, H. J. Flagg, Grays Harbor Railway & Light Company, Aberdeen. The above, with the addition of F. J. Rankin, Idaho Power Company, Boise, Idaho, constitute the executive committee of the Technical Section.

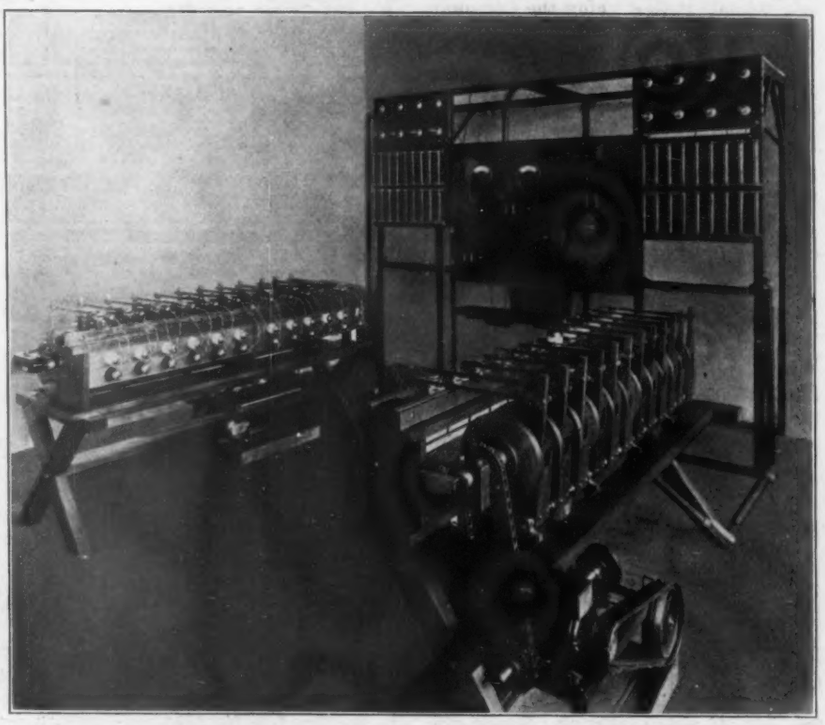
**Applications for Permits to Appropriate Water Filed with the California Division of Water Rights.**—J. M. O'Brien, San Francisco, Calif., has applied for permission to appropriate 125 sec.-ft. from South Fork North Yuba River to be diverted for power development purposes estimated to cost $50,000. Bear River Water & Power Company, Auburn, has filed application to divert for generation of 42,994 hp., 250 sec.-ft. and 100,000 acre-ft. storage from Bear River tributary to Feather River. Permit to divert 500 sec.-ft. and 400,000 acre-ft. por annum storage from Cosumnes River tributary to Mokelumne River for generation of 40,000 theoretical horsepower has been applied for by Stephen E. Kieffer, San Francisco.

**Extension of Wynooche River Permit Requested.**—An extension of his water rights on the Wynooche River, Grays Harbor County, Wash., has been requested by J. E. Malinowski of Aberdeen, from Oct. 25, 1924, to Oct. 25, 1925, in order to allow the City of Aberdeen, to which he has tentatively assigned his rights, to proceed with construction work. The extension is necessary, Mr. Malinowski points out, because the courts have declared void an election which provided for a bond issue allowing the city to begin construction work.

**Applications Filed for Water Appropriation in Oregon.**—The California Oregon Power Company of Medford, Ore., has applied for permit to appropriate water from Clearwater River and Mowich Creek for the development of 14,205 hp. in Jackson County, according to announcement issued by Rhea Luper, state engineer. The Oregon-California Hydroelectric Company of Portland, has filed application covering the construction of Salmon River reservoirs and other reservoirs for storage of 200,000 acre-ft. of water from Salmon River for power development and municipal purposes in Clackamas County. The engineer's office also reports that Malcolm A. Moody of The Dalles, has applied for permission to appropriate water from Deschutes River for power development in Wasco County.

**Display Men See Electrical Window Display Exhibit.**—The Northwest Display Men's Association held a convention in Spokane, Wash., Sept. 22-24. A special meeting on Sept. 23 was devoted to store and window lighting, the feature of which was an address by Clarke Baker, National Lamp Works of the General Electric Company, Oakland, Calif., in which Mr. Baker used for the first time special equipment, including a portable show window and stage 12 ft. long, 12 ft. wide and 6 ft. deep. This meeting was attended by 200 persons, including the display men and a number of the Spokane electrical dealers and contractors.

**Electric Cooking School to Be Held in Oregon.**—An electric cooking school is to be held in Corvallis, Ore., Sept. 29-Oct. 3. Miss Carroll Dangler, home economist of the Edison Electric Appliance Company, Inc., will be in charge.



**Machine designed and used by Harvey Hubbell, Inc., Bridgeport, Conn., for testing key sockets and switches. A counter at end of machine shows number of operations and should trouble develop it is indicated by one of the lamps on the switchboard. This is said to be the first machine to successfully test toggle switches.**

# Large Attendance Expected at Pasadena Convention

## Prominent Eastern Engineers and Pioneers of Industry Are to Be Present at Pacific Coast Meeting of A.I.E.E.

Elaborate plans for the entertainment of the delegates to the Pacific Coast Convention of the American Institute of Electrical Engineers to be held at Pasadena, Calif., Oct. 13-18, and an exceptionally good program, insure a most successful meeting. The complete program for the convention appeared on page 224 of the Sept. 15 issue of Journal of Electricity. Convention headquarters will be at the Hotel Maryland.

A special party from the East, including many prominent engineers and pioneers in the electrical engineering profession, are on their way to the Coast to attend the meetings. Stops will be made at points of interest along the route, the party arriving in San Francisco Oct. 2. There they will be the guests of the San Francisco section of the A.I.E.E. Trips will be made to the Vaca-Dixon substation of the Pacific Gas and Electric Company and to Stanford University. The party will make an inspection trip to the Hetch Hetchy project of the City of San Francisco, following which two days will be spent in Yosemite National Park.

Technical sessions of the convention will begin Monday morning, Oct. 13, with an address of welcome by H. M. Wadsworth, chairman of the board of directors of the City of Pasadena, with the response by President Osgood of the Institute. Business meetings will continue until Friday noon. A session of special and scientific interest will be that on Wednesday afternoon held at the California Institute of Technology, with papers by members of the Norman Bridge Laboratory of Physics and of the faculty of the Institute. During that afternoon and evening the California Institute of Technology will keep open house and a number of interesting tests and experiments have been arranged for the guests in the physics laboratory and the new million-volt laboratory.

The program for the Pacific Coast Convention should prove of special interest this year in that there will be one whole session devoted to papers dealing with the industrial application of electricity in addition to the usual sessions for the presentation of papers of a purely technical nature.

### Entertainment

Two attractive features have been arranged for the entertainment of the delegates and guests. On Tuesday evening all guests will be conveyed by automobile to one of the beach resorts, where a stop will be made and brief addresses will be given by men prominent in the electrical industry. This trip will be replete with interesting sights and features. A trip is scheduled to Mt. Wilson, leaving in the late afternoon Thursday, where guests will have an opportunity to see the apparatus of the Carnegie Institute in action. The trip includes accommodations at the hotel on Mt. Wilson. Friday afternoon will be given over to the golf and tennis tournaments. On the evening of this same day the Edison banquet will be held with a feature program by eminent electrical pioneers. The banquet will be open to the citizens of Pasadena in commemoration of Jubilee Year.

The convention will officially close Friday night but on Saturday a number of special trips will be arranged to suit the varied tastes of visitors and guests.

## Department of Public Works to Investigate Rates

Looking toward a readjustment of rates charged by the Pacific Power & Light Company, Portland, Ore., in eastern Washington towns, the Department of Public Works, Olympia, Wash., has entered a complaint against the utility company. The complaint, which was the outgrowth of a formal complaint received from the City of Walla Walla, is made to affect all the communities served from the company's Yakima-Walla Walla power system, and includes, besides Walla Walla, such cities and towns as Dayton, Pasco, Kennewick, Prosser, Sunnyside, Toppenish and Yakima.

The department intends to investigate the properties of the company and the rates charged by it in these districts, and to this end has appointed, to carry on the investigation, J. D. Ross, superintendent of lighting department, Seattle, and F. R. Nichols, engineer that had charge of the electrification of the Chicago, Milwaukee & St. Paul Railroad, to work with its own chief engineer, James W. Carey. On completion of this investigation the department will call a public hearing at which all the interested parties may be heard.

# Books and Bulletins

### SUPERPOWER AS AN AID TO PROGRESS

By GUY E. TRIPP. G. P. Putnam's Sons, New York.

General Tripp, who is chairman of the board of directors, Westinghouse Electric & Manufacturing Company, was one of the first to recognize the possibilities of so-called "superpower." Through his active cooperation, Frank G. Baum of San Francisco was enabled to produce his monumental work, "An Atlas of the U. S. A. Electric Power Industry," that formed the major topic of discussion at the 1923 convention of the National Electric Light Association.

While Mr. Baum's work concerned itself largely with the technical phases of superpower, General Tripp's book is more popular in its character, and deals with the subject in terms of its influence upon civilization, the welfare and industrial development of the people. The general subject is covered in six chapters, including: The Electrification of North America, Private Ownership vs. Government Ownership of Superpower Systems, What America's Water Power Will Do For American People, Water Power and Statesmanship, States Must Not Isolate Their Water Power, Superpower as an Aid to National Defense.

In general, this work represents the thoughtful conclusions of a man whose life and experience have given him a profound grasp of industrial development and the progress of civilization. Everyone in the electrical industry may well read and study General Tripp's conclusions.

Hotel Maryland, Pasadena, where the Pacific Coast Convention of the American Institute of Electrical Engineers will be held, Oct. 13-18.

# Meetings

## Confederation of Leagues Plan Adopted at Meeting

The adoption of a plan for the organization of a national league of local electrical clubs and leagues was one of the principal things accomplished at Camp Cooperation IV, the third conference of local electrical leagues held at Association Island, N. Y. The business sessions of the conference were held Sept. 2-6 and were attended by 215 persons representing fifty-one local leagues.

The plan adopted by the representatives of the various leagues calls for the formation of a national League Council which shall establish organized cooperation between individual local leagues without setting up another national association with national offices. To eliminate the formation of such an association for this purpose the plan proposes the establishing of a working arrangement with the Society for Electrical Development whereby that organization will be used as a national clearing house for league activities and to provide a national service to local leagues.

Management of the confederation of leagues, according to the plan, is to be vested in a League Council elected by the leagues at the annual conference.

### COMING EVENTS

**Association of Electragists, International—**
Annual Convention—West Baden Springs, Ind.
Sept. 29-Oct. 4, 1924

**American Institute of Electrical Engineers—**
Pacific Coast Convention—Pasadena, Calif.
Oct. 13-18, 1924

**Illuminating Engineering Society—**
Annual Convention—Briarcliff Lodge, Briarcliff Manor, N. Y.
Oct. 27-31, 1924

**Commercial National Section, National Electric Light Association—**
Hotel Rafael, San Rafael, Calif.
Nov. 19-21, 1924

Twelve representatives, one from each geographic section of the United States in accordance with the map used by the National Electric Light Association and one from Canada and members from such important leagues as it seems advisable to have represented, will make up the League Council. The Society for Electrical Development is to provide national headquarters for the confederation and in general provide the working organization for the League Council. The entire plan including the articles of confederation have been published and copies sent to the various electrical organizations throughout the United States. The plan was drawn up by a committee that was appointed at Camp Cooperation III and was headed by Earl E. Whitehorne, commercial editor, Electrical World.

Following the presentation and acceptance of the plan representatives to the League Council were nominated and elected. The men elected to represent the West on the Council are:

**Rocky Mountain States.**—Harry D. Randall, General Electric Company, Denver, chairman Electrical Cooperative League.

**Northwestern States.**—Harry J. Martin, National Carbon Company, Seattle, president Electric Club of Seattle; R. M. Blake, Utah Power & Light Company, Salt Lake City, secretary-treasurer Rocky Mountain Electrical Cooperative League.

**Pacific Coast States.**—C. T. Hutchinson, Journal of Electricity, San Francisco, San Francisco Electrical Development League; K. E. Van Kuran, Westinghouse Electric & Manufacturing Company, Los Angeles, Electric Club of Los Angeles.

**Canada.**—J. Lightbody, British Columbia Electric Railway Company, Vancouver, honorary secretary Electrical Service League of British Columbia.

In addition to discussing the above plan the delegates at Camp Cooperation also spent considerable time in discussing the Red Seal plan for promoting adequate wiring that is being conducted under the direction of the Society for Electrical Development. Attention of the conferees was also focussed upon the activities of the Lighting Educational Committee.

## Apparatus Bureau Makes Plans for Coming Year Study

Discussion of the program for the coming year was held during the first meeting of the Apparatus Bureau of the Technical Section, P.C.E.A., held in Los Angeles, Sept. 18. Fifty members of the bureau were in attendance and sessions were held in the morning and afternoon.

It is the plan of the bureau to study oil circuit breakers; oil that will be suitable for all oil-immersed apparatus; transformer cooling and design; power interchange; relays and relay application; and automatic generating plants and automatic substations. The Apparatus Bureau plans to assist the Hydraulic Power Bureau in the compilation of a joint report on existing hydro-electric stations and will also assist the Prime Movers Bureau in preparing a joint report on existing steam plants. Station electrical grounds, power factor correction, lightning arresters, and fire fighting equipment will also receive attention from the bureau.

**Spokane Electric Club Elects Officers.**—The Spokane Electric Service League held a special dinner meeting at the Davenport Hotel on Sept. 15, at which the annual election of officers was held. Lewis A. Lewis, sales manager of The Washington Water Power Company, was chosen president. Plans were made for the coming year and it was decided to organize a special campaign to promote better home lighting. The meeting was enlivened by a brief but well chosen vaudeville program.

**Extensive Electric Exhibit to be Displayed at Fair.**—The annual Western Washington Fair, held at Puyallup, Wash., Sept. 29 to Oct. 5, will display a new electric building under construction in which an electric exhibit will demonstrate the possible uses of electricity for every farm purpose, from milking a cow to running the washing machine. Electrically equipped farms, homes and business houses will be worked out in models. Sharing space with the electrical display in the new building, will be an art exhibit electrically lighted, so as to give the finest possible display.

## Discuss Home Lighting Contest at Los Angeles Meeting

A meeting of the Los Angeles Committee for the Home Lighting Contest was held Sept. 12, in the auditorium of the Southern California Edison Company, with A. W. Childs, manager of the commercial department, Southern California Edison Company, as chairman. About one hundred and twenty-five representative men of the electrical industry were present.

Victor W. Hartley, executive secretary of the California Electrical Cooperative Campaign, outlined the scope and plan of the Home Lighting Contest in detail, after which a discussion of the campaign was entered into and brief talks were made by the following: J. H. Jamison, manager, merchandising division, Westinghouse Electric & Manufacturing Company; H. C. Rice, assistant sales manager, appliance division, Southern California Edison Company; Prof. A. R. Clifton, superintendent of the Monrovia Public Schools; David C. Pence, manager lamp department, Illinois Electric Company; F. E. Seaver, assistant secretary of the Los Angeles Gas & Electric Corporation and president of the Los Angeles Electric Club, and Paul J. Denninger, Whittier district manager, Southern California Edison Company.

### COMING PACIFIC COAST ELECTRICAL ASSOCIATION MEETINGS

**Appliance Bureau, Southern Group—Commercial Section—**
Los Angeles, Calif.
Oct. 3, 1924

**Executive Committee, Commercial Section—**
Los Angeles, Calif.
Oct. 17-18, 1924

**Power Bureau—Technical Section—**
Los Angeles, Calif.
Oct. 17-18, 1924

**Appliance Bureau—Commercial Section—**
Los Angeles, Calif.
Oct. 17-18, 1924

**Transportation Bureau—Commercial Section—**
Los Angeles, Calif.
Oct. 17-18, 1924

**Executive Committee, Commercial Section—**
San Francisco, Calif.
Nov. 19-21, 1924

**Purchasing and Stores Section—**
Del Monte, Calif.
Nov. 20-21, 1924

**Power Bureau—Technical Section—**
San Francisco, Calif.
Nov. 20-21, 1924

**Southern California Appliance Bureau Members Hold Meeting.**—To organize and to prepare plans for the ensuing year nine southern California members of the Appliance Bureau, Commercial Section, P.C.E.A., met in Los Angeles Sept. 19. The men in attendance determined that one of the principal activities of the bureau would be the recommending of definite selling plans for the various appliances. At the next meeting of the southern California members of the bureau, to be held in Los Angeles Oct. 3, subjects to be covered by the various sub-committees will be outlined. This meeting will be preliminary to a general meeting of the entire Appliance Bureau, to be held in Los Angeles Oct. 17-18, in conjunction with the Commercial Section Meeting.

# Manufacturer, Dealer and Jobber Activities

**The Bryant Electric Company,** of Bridgeport, Conn., has recently added to its line of electrical wiring devices a new line of shallow push button switches. These switches are known as the "5500 Line" and are made in single pole, double pole, three point and four point styles. The company has also placed on the market a lock type tumbler switch that is similar to the Bryant shallow cup flush tumbler switch except that the composition handle has been removed and replaced by a fibre shield slotted to receive the actuating key. To adapt its types of standard cut-out bases and fused switches for use with single fused circuits, the company has removed the fuse holding means from one side of all double-pole main line and branch circuit cut-out bases and has bridged the gap with a permanent metal shunt, thus leaving provisions for the use of only one fuse in each circuit. This is done to comply with the 1923 National Electrical Code recommendations providing for fuses only on the ungrounded side of all branch circuits. On the triple pole devices the middle or neutral fuse receptacles have been omitted and the gap bridged by shunts.

**Crouse-Hinds Company,** Syracuse, N, Y., has published folder No. 13, which is devoted to the line of connectors manufactured by the company. Bulletin No. 2058 presenting a description of Wedgtite pipe hangers manufactured by the company has also been published.

**The Esterline-Angus Company,** Indianapolis, Ind., has published Bulletin No. 624 which deals with the operation of its multiple chart speed meters. Wiring diagrams showing the installation of the meters are also presented.

**The Blue Bird Electric Shoppe,** under the proprietorship of H. C. Shireman and George W. Paulsen, was opened Sept. 1, at 287½ Washington Street, Portland, Ore. The new store specializes in retail sales of the Blue Bird washer, Utenco ironer, and other large appliances.

**Ward-Leonard Electric Company,** Mt. Vernon, N. Y., has published Bulletin 59. This bulletin is devoted to a description of the company's manual type direct current motor starters and controllers. A complete listing of this type of equipment is contained in the bulletin together with list prices on the devices.

**The William Cramp & Sons Ship & Engine Building Company,** Philadelphia, Pa., and The Pelton Water Wheel Company, San Francisco and New York, have announced the opening of a southern office in Birmingham, Ala. Quin W. Stuart has been appointed district engineer with offices in Birmingham.

**Detroit Electric Furnace Company,** Detroit, Mich., has prepared for distribution a well illustrated booklet relative to that company's line of electric brass melting furnaces. Illustrations showing installations of the company's furnaces in industrial plants show the adaptability of the electric furnaces to various usages.

**The R. Thomas & Sons Company,** East Liverpool, Ohio, has published leaflet PD-147 which is devoted to the company's line of insulators designed for use by railroad and telephone companies.

**National Tube Company,** Pittsburgh, Pa., has recently issued National Bulletin No. 10 which is devoted to the use of "National" pipe in power plants. The bulletin shows pictorially a wide range of uses for National pipe in central station work, both in ordinary runs and in special cases. Standard specifications for the company's line of pipe are also included in the text matter.

**Illinois Stoker Company,** Alton, Ill., has recently published the third edition of Catalog L which is devoted to the Illinois line of chair grate stokers. The catalog contains a complete discussion on both the Type A (natural draft) and Type G (forced draft) stokers. A noteworthy feature of the catalog is the array of blueprint drawings which appear on pages 32 to 61, inclusive, and illustrate the use of both forced and natural draft Illinois chain grate stokers in connection with all of the principal types and makes of boilers. The catalog is designed principally for power plant operators' use and will be sent free upon request.

**The A B Products Division** of the **National Screw & Manufacturing Company,** Cleveland, Ohio, has prepared two supplementary catalog sheets, one devoted to "Glass-Steel" ABolite combinations and parts and the other to ABolite reflector-shade-holder combination units for pendants. Myers & Schwartz, with offices in San Francisco, Seattle, and Los Angeles, are Pacific Coast distributors for the manufacturer.

**Steel City Electric Company,** Pittsburgh, Pa., has issued a sheet presenting distributors' net prices on Universal couplings.

**Worthington Pump & Machinery Corporation** of New York, N. Y., has recently announced the design of an entirely new type two-cycle double acting Diesel engine. The company claims that the new engine combines a fuel economy comparable with that of the best existing type of Diesel engine, with dimensions, weight and construction cost per horsepower approaching those of reciprocating steam machinery. It is also claimed that indications are that a greater horsepower per cylinder can be obtained from the new engine than has been from any Diesel engine yet designed. The new Worthington engine is of American design and construction and owes nothing to European patents or ideas.

**C. F. Braun & Co.,** Alhambra, Calif., has published Bulletin 114 which is devoted to a description of Braun cooling towers. The bulletin contains complete description of the company's line of cooling towers and presents illustrations showing many installations of the equipment.

**The California Wire & Cable Company,** formerly the California Wire Company, has been appointed sole distributor for the copper wire products of the Columbia Steel Corporation, Pittsburg, Calif.

**The Ne Page-McKenny Company,** Armour Building, Seattle, Wash., has received the contract for the electrical wiring in the Medical and Dental Building under construction at Fifth and Westlake Avenues. The structure will cost $2,500,000.

**The above four promenaders, caught by the photographer on the Boardwalk at Atlantic City during the recent N.E.L.A. convention, are well known in the electrical industry in the Northwest, three of them having been at one time officials of the Pacific Power & Light Company, Portland, Ore., while the fourth for many years has represented the manufacturers of Thor products in Oregon, Washington and Idaho. Reading from left to right they are: R. G. Chamberlain, district manager for the Hurley Machine Company, Seattle, Wash.; C. S. Walters, vice-president and general manager of the Asheville Power & Light Company, Asheville, N. C.; P. F. Gow, treasurer of the Kansas Gas & Electric Company, Wichita, Kan., and J. V. Strange, operating manager of the Carolina Power & Light Company, Raleigh, N. C.**

# Personals

**Donald C. Barnes,** since 1919 manager of the central division of the Puget Sound Power & Light Company,

DONALD C. BARNES

Seattle, Wash., was promoted Sept. 1 to be a vice-president of that company with headquarters in Boston. Previous to his appointment as Seattle manager Mr. Barnes had been manager of the Everett (Wash.) division of the company where he also managed the Puget Sound International Railway & Power Company, the Pacific Northwest Traction Company, and the Seattle-Everett Interurban Line in charge of railway, light and power operation. He is well known in utility circles, having been associated with Stone & Webster companies since 1905. Mr. Barnes was born in Cambridge, Mass., in 1880 and graduated from Harvard University in 1902 with the degree of A.B., receiving two years later the degree of B.S. in electrical engineering. Following his graduation he served with the Boston Elevated Railway, the Little Rock Railway & Electric Company (now the Arkansas Central Power Company), the Birmingham Railway, Light & Power Company, the Electric Light & Power Company of Abington and Rockland, Mass., the Edison Electric Illuminating Company, Brockton, Mass., and the Blackstone Valley Gas & Electric Company of Pawtucket, R. I. Mr. Barnes is an associate member of the American Institute of Electrical Engineers and belongs to the leading clubs of Seattle and Everett.

**Dave McCulloch,** of the Electric Service Company, Sacramento, Calif., recently made an eight-day business trip through Nevada by automobile.

**R. G. Chamberlain,** district manager of the Hurley Machine Company, Seattle, Wash., visited Spokane, Sept. 21 and 22, in connection with general sales matters.

**P. O. Crawford,** of the California-Oregon Power Company, Medford, Ore., was recently in San Francisco, Calif., on his way to the meeting of the technical section of the Pacific Coast Electrical Association held at Los Angeles Sept. 17-19.

**C. M. Brewer,** vice-president and general manager, together with **Z. E. Merrill,** assistant general manager, Mountain States Power Company, Albany, Ore., spent the week of Sept. 22 in Spokane, Wash., and vicinity in company with **Lee Bennett,** local manager of the company's properties in northern Idaho.

**J. F. Anderson,** manager appliance sales, Southern California Edison Company, Los Angeles, Calif., recently spent several weeks in the East, and while there visited the cities of Boston, Mass., New York City, Chicago, Ill., and Portland, Me.

**D. F. McCurrach,** rate engineer,of the Northwestern Electric Company, Portland, Ore., attended the Oregon Irrigation Congress at Klamath Falls, the early part of September.

**Ralph J. Cordiner,** special representative of the Edison Electrical Appliance Company, Portland, Ore., is spending a week or two in Spokane in connection with the cooking school which will be conducted by the Spokane Chronicle during the week of Sept. 29.

**J. H. Fenton,** manager industrial department, Westinghouse Electric & Manufacturing Company, Los Angeles, Calif., recently returned from an extended trip to East Pittsburgh, Pa., New York City, Springfield, Ohio, and other Eastern cities, visiting the various factories of that company.

**G. F. Hain,** formerly with the Portland, Ore., office of Westinghouse Electric & Manufacturing Company, was transferred to the Spokane, Wash., office as of Aug. 1, as special representative in charge of electrical merchandising. Mr. Hain replaces C. H. Rice, resigned.

**William H. D. Connah,** of the Detroit Edison Company, Detroit, Mich., was a recent visitor to San Francisco, Calif.

**Harris J. Ryan,** professor of electrical engineering at Stanford University, was a recent visitor to Los Angeles, Calif., during which time he delivered the principal address before the meeting of the Technical Section, Pacific Coast Electrical Association.

**Robert Buckles,** who has been representing the Westinghouse Lamp Company in the Pacific Northwest territory, has been transferred to the San Francisco office of the company.

**Alfred Bachrach,** in charge of general service department, General Electric Company, Los Angeles, Calif., has just recently returned from an extended trip. While away, Mr. Bachrach visited Portland, Ore., Seattle, Wash., Kansas City, Mo., Chicago, Ill., and El Paso, Texas.

**George E. Lewis,** executive manager of the Rocky Mountain Committee on Public Utility Information, will represent Denver, Colo., traction interests at the coming annual convention of the American Railway Association at Atlantic City, N. J.

**Wm. F. Raber,** general manager, **L. M. Klauber,** general superintendent, and **A. E. Holloway,** superintendent of the commercial department, of the San Diego Consolidated Gas & Electric Company, attended the Pacific Coast Gas Association convention at Santa Barbara, Calif., Sept. 8-12.

**William Hoflich** has been appointed agent at Albany, Ore., for the Delco farm lighting units, Frigidaire electric refrigerators and Savage washers. Mr. Hoflich will make his headquarters at the Willard Electric Store, Albany.

**William H. Galvani,** engineer in charge of property, right-of-way and tax matters for the Pacific Power & Light Company, Portland, Ore., has been retired from active service with that company and has taken up his residence at Seaside, Ore. He still holds his position with the company and will, through frequent visits to Portland, keep in touch with the affairs of his department, so that his many years of experience may be utilized in an advisory way.

**Ellery W. Stone,** president of the Federal Telegraph Company, and Dr. Frederick W. Kolster, inventor of the Kolster radio compass left for Washington, D. C., on Sept. 25 to represent the marine commercial interests in a conference to be held in Washington on Sept. 30. Mr. Stone and Dr. Kolster were invited by Secretary Herbert Hoover to attend the conference.

**Leslie W. Nims** has been made manager of the Idaho Falls division of the Utah Power & Light Company, Idaho Falls, Utah.

**Lloyd Garrison,** of Salt Lake City, deputy state engineer of Utah since April, 1921, has been appointed state engineer to succeed R. E. Caldwell, resigned. Mr. Garrison was born in Illinois in 1884, and spent his youth there. He graduated from the University of Illinois in 1907, with a degree in electrical engineering. After leaving college he took an apprenticeship course with the Denver Gas & Electric Company, in gas and electrical engineering, in Denver. He went to Salt Lake City in 1909, and became associated with the Utah Light & Railway Company, predecessor of the Utah Power & Light Company, serving with this organization in the capacity of commercial engineer until the latter part of 1915. In the meantime Mr. Garrison had been studying law, and was admitted to the bar early in 1916. When the war broke out he entered

LLOYD GARRISON

actively into service as a captain in the 145th Field Artillery. He served in this capacity both in the United States and overseas until the close of the war and is now a major in the Engineers' Reserve Corps. In April, 1921, he received the appointment as deputy state engineer. Due to his legal training and his experience in the work of the state engineer's office, gained during the past three years, Mr. Garrison is exceedingly well qualified to handle the duties of his new position as state engineer.

**R. W. Stubbs,** president of the Stubbs Electric Company, Portland, Ore., was a recent visitor to San Francisco, Calif.

**D. D. Sturgeon,** prominent Denver, Colo., electragist, has been appointed a member of a special committee of the Chamber of Commerce in that city to study the road situation and especially the possibilities of constructing a new road to connect Fort Logan with that city.

**George W. Bixler,** advertising manager of the Public Service Company of Colorado, Denver, Colo., has returned from an extended European trip during which time he attended the convention of the Advertising Clubs of the World in London.

**G. D. Buck,** newly appointed head of the electrical merchandising department of the Public Service Company of Colorado with headquarters in Denver, Colo., has returned to his former location at Durham, N. C., to complete arrangements for the removal of his family to Denver.

**Al. C. Joy,** manager of the publicity department of the San Joaquin Light & Power Corporation, Fresno, Calif., was a recent visitor to San Francisco. Mr. Joy attended a meeting of the technical section of the Pacific Coast Electrical Association at Los Angeles, Sept. 17-19.

**Frank Perry,** of the Wong & Perry Electric Company, Boston, Mass., was recently in San Francisco, Calif.

**Elbert Kramer,** formerly representative in southern California of Landers, Frary & Clark, New Britain, Conn., has recently been transferred to the Pacific Northwest, where he will be the Northwest manager for that organization. Mr. Kramer attended the Carnegie Institute of Technology, Pittsburgh, and after his graduation from that institution, completed the apprenticeship course of the Westinghouse Electric & Manufacturing Company at East Pittsburgh, Pa. He remained with that

ELBERT KRAMER

organization for a period of ten years, during most of which time he was associated with the San Francisco, Calif., office. He first went to San Francisco to look after the Westinghouse exhibit at the Panama-Pacific Exposition in 1915, at the close of which he joined the San Francisco office. Mr. Kramer was active in electrical affairs in Los Angeles and southern California, and at the time of his departure was chairman of the Entertainment Committee of the Los Angeles Electric Club.

**A. A. Smith,** secretary and general counsel of the Eastern Oregon Light & Power Company, Baker, Ore., was one of those present at the Oregon Irrigation Congress at Klamath Falls, early in September.

**E. G. Robinson,** president and manager of the Molalla Electric Company, Canby, Ore., was in Klamath Falls early in September, where he attended the Oregon Irrigation Congress.

**Granville H. Peets,** of the public relations department of the Puget Sound Power & Light Company, Seattle, Wash., recently addressed the Kiwanis Club of Vancouver, Wash.

**Walter F. Price,** executive secretary of the California State Association of Electrical Contractors and Dealers, San Francisco, has gone to West Baden, Ind., to attend the annual convention of the Association of Electragists, International.

**Clyde Chamblin,** president of the California Electrical Construction Company, San Francisco, Calif., has gone to West Baden, Ind., to attend the annual convention of the Association of Electragists, International.

**Glen W. Willard** has purchased the interest of William Hoflich in the electric store recently conducted by the two men at Albany, Ore., and will conduct the business in the future. He will continue to do a general retail and contracting business under the firm name of the "Willard Electric Store."

**L. C. Mack,** proprietor of Mack's Electrical Supply Company, Eugene, Ore., has formed a partnership with **C. A. Elkins** and has opened a new and larger store. Mr. Elkins was formerly with the engineering department of the Southern Pacific Company at Beaverton, Ore. The business will in the future be known as "The Electric Store."

**Grover A. Anderson,** for several years with the Electric Appliance Company, San Francisco, Calif., and more recently sales manager of that company, has resigned to become affiliated with the Handy Hanger Manufacturing Company, San Francisco.

**Percy H. Booth,** Pacific Coast sales manager, Edison Electric Appliance Company, Chicago, Ill., recently returned from Chicago and other Eastern points.

**W. E. Smith,** for the past fifteen years manager of the electrical department of Marshall-Wells Hardware Company, Portland, Ore., has resigned from that company to become affiliated with the Baldwin Pacific Company, Pacific Coast representatives of radio and electrical specialties.

**A. B. Day,** vice-president and general manager of the Los Angeles Gas & Electric Corporation, has been made a member of the executive committee of the Pacific Coast Gas Association.

**William H. Talbott,** supervisor of the meter department, San Diego Gas & Electric Company, San Diego, Calif., recently spent several days in Los Angeles attending the meetings of the Technical Section, Pacific Coast Electrical Association. Mr. Talbott is also a member of the Meter Committee and remained over to attend a meeting of that committee.

**Fred S. Mills,** Pacific Coast representative, Curtis Lighting, Inc., Chicago, Ill., recently returned from an extended trip to Chicago and other Eastern cities, where he visited the various factories of the company.

**J. C. Clark,** until recently associate professor of electrical engineering at Stanford University has resigned to accept a professorship in Iowa State College, electrical engineering department. His duties in his new position will consist in the direction of the work of graduate students and in the conduct of research. Mr. Clark has been a member of the staff at Stanford for the past twelve years during which time he has

J. C. CLARK

been active in the affairs of the American Institute of Electrical Engineers, having contributed a number of papers and served as chairman of the San Francisco Section of the Institute. He is an alumnus of Iowa State College and of Harvard University.

**Z. E. Merrill,** assistant general manager, Mountain States Power Company, Albany, Ore., was among those who attended the Oregon Irrigation Congress at Klamath Falls in September.

## Obituary

**Arthur S. Huey,** a vice-president of the San Diego Consolidated Gas & Electric Company and other Byllesby properties on the Coast, chairman of the board of H. M. Byllesby & Company, and of the Standard Gas & Electric Company, died of pneumonia Tuesday, Sept. 9, in Chicago, Ill. Mr. Huey was born in Minneapolis, in 1862, and had been identified with the electrical industry since 1885. He had been a vice-president of H. M. Byllesby & Company since the founding of that organization in 1902. Although starting his career as a printer, Mr. Huey did not long remain at this vocation. He became associated with the management of a group of theaters in Minneapolis, from which, in 1885, he was made the representative of the Edison (manufacturing) Company at Minneapolis. After the consolidation of that company with the Thompson-Houston Electric Company, he became associated with the Northwestern General Electric Company as manager of the St. Paul, Minn., office. He was also a pioneer in the development of electric vehicles.

**William A. Tenney,** president of the Clifton Manufacturing Company, Boston, Mass., died on Aug. 27.

# Trade Outlook

## San Francisco

As is the case in all lines of business, buying in the electrical industry is still exceedingly cautious due to the uncertainty of the market. Industrial business is fairly good, and some good orders for lighting units, chiefly for office buildings, have been reported. Appliance sales are fair. The policy of strict economy is being continued by central stations, maintenance expenses being reduced as low as possible on account of the increased cost of generation of power by steam plants.

Shipping circles are active, as large shipments of California products are moving at this time by both rail and water. Cargoes of dried and canned fruits are being exported to England and France, and miscellaneous cargoes are going to South and Central America and Atlantic ports.

Local manufacturers and jobbers report conditions fair with more activity shown in buying as fall approaches, particularly as applied to dry goods, women's clothing, hardware and furniture.

Estimates of the amount in orders placed for immediate or early delivery as the result of annual Market Week set the figure at $10,000,000. This is regarded as an indication of reassuring conditions.

## Salt Lake City

Dividend disbursements of $701,000 made during the past month by three Utah silver-lead mines indicate the prosperity of that industry and its importance to this section. Even more encouraging than present dividends is the assurance in the metal markets of the world that the indicated future course for silver, copper and lead, Utah's major metals, is brighter than at any time in years.

Bank deposits in Salt Lake banking institutions for the second quarter of the present year show material increases over the first quarter of 1924 and the second quarter of 1923, reflecting an advance in general prosperity not only in Salt Lake, but also in the country tributary to the city.

An example of increased business activity is to be found also in a large increase in bank clearings for the past few months as compared with similar periods of last year and with the preceding months of this year.

Jobbers report better business conditions than existed thirty days ago, with a favorable outlook for fall.

## Seattle

A steady improvement in the lumber industry and a strengthening of the lumber market are the most encouraging features of the Northwest industrial situation. A number of lumber plants, closed since middle summer, have been reopened, and logging camps are resuming activities all through the Puget Sound district.

The retail situation is improved with the reopening of fall demand, and wholesalers report demand quickening. Prices are fairly well stabilized at about the level of last year.

The status of employment throughout the state is showing a decided improvement with the reopening of lumber activities and the demand for harvest hands. The building situation continues satisfactory. Reports of heavy constructional activities are received from most of the Puget Sound cities.

Electrical appliances are moving freely, especially lamps and domestic equipment. The expected increase in the movement of motors and equipment to industrials has not yet materialized to the extent predicted, but there is no discouragement felt on this score as the increase is steady. Prices are still holding, although the trend is upward. Stocks in practically every line are in good shape, and dealers and jobbers are equipped to care for every need of the fall and winter trade.

## Los Angeles

Business conditions in Los Angeles are gradually showing signs of improvement and each succeeding two weeks' period shows a gradual tendency for the better. In all branches of industry there is a prevailing feeling of optimism which is accounted for by the fact that the low point of June and July has passed and that present conditions and future outlook warrant it. There is still an abundance of labor to meet all demands, and though the building industry is not as active as it was at this time last year, it has picked up considerably during the past month. Bank clearings continue to show an increase, while harbor activities are above those of any other time.

Conditions in the electrical industry compare favorably with those in other branches, and though there is not a very large demand for retail appliances, business conditions are improving gradually. The improvement is particularly apparent in the wholesale and manufacturing lines, and the outlook is considerably brighter than that of three months ago. The sale of radio apparatus and supplies which has kept up fairly well all summer has increased. Collections though a bit slow are much improved.

## Portland

Retail business is of fair volume and improving. Jobbers are optimistic over the prospects of larger sales, due to the higher prices on most agricultural products. The large volume of building construction, coupled with continued fair weather, keeps skilled labor employed.

The lumber industry is steadily improving. The demand is considerably above production, and prices consequently have advanced. The increase in demand is largely attributed to greater consumption in agricultural districts. The supply of logs is below normal and prices improving.

The movement of apples is increasing but is behind last year. Prune drying is about completed and a number of shipments will go forward this month. Estimates of the Columbia River salmon pack indicate that about 290,000 cases of salmon of exceptional quality have been packed. This is about 12 per cent below last year. Wheat is not selling freely, the farmers holding for still higher prices.

Building permits in Portland for August reached well over three million dollars. At the end of August the year's total was about $23,000,000.

## Denver

Reports from the agricultural regions continue to show improvement, to such an extent in many places that present crops will be record breakers even in the light of the early summer water shortage. This condition has reflected a growing optimism in other lines of business in the country based mainly on available cash for the farmer which will permit him considerable latitude in buying, such as has not been in evidence for several years.

Grain crops are uniformly good. Early campaign reports from the sugar companies indicate that the beet crop, unless hit by a heavy freeze, will be up to expectations.

Oil continues to be the chief subject in certain sections. Those cities close to the discovery wells are commencing to get their first real business as a result of this new activity. The railroads are getting a good haulage of tank cars. Supply houses in this city report increasing purchases from the oil fields. Labor conditions are good.

There has been a slight recession in the amount of building in this city but the drop-off for the remaining months is not believed sufficient to reduce the total to a figure below the record established last year.

## Spokane

Business in general has dropped off during the past month and a revival is not expected to take place until after election. The packing plants are working at normal output, with decrease in prospect, however, due to falling off in deliveries of livestock. In banking circles, a tendency to relax restrictions on loans and mortgages is noted, a fact which will no doubt stimulate building activities during fall and winter. Several of the larger industrial concerns are now planning improvements and extensions which have merely been discussed for a number of years. This shows a strong feeling of confidence in the future.

In retail business lines there is a strong note of pessimism, which seems to be due rather to a state of mind than to any solid foundation of fact. During the week of Sept. 8 The Washington Water Power Company sold $5,000 worth of electrical merchandise, reaching the maximum for the year.

Mining activities in the Coeur d'Alene district of Idaho, British Columbia and northeastern Washington, are characterized by greater interest in prospecting and development of old properties than has been experienced since the war.

A McGraw-Hill Publication

*Fall Buying Number*

# Journal of Electricity

25 Cents a Copy

October 15, 1924

San Francisco

## Good Buying is Half the Selling

The Johnson Impeller Washer **satisfies** the customer when she first sees it—and ever after. Its thorough Impeller washing action—**attractive** appearance—and simple mechanical details make an instant hit with the housewife—**and** reduce service costs to the zero point.

### *The Johnson Franchise is Valuable*

It **may** be open in your district. Write or wire us today for details.

## The JOHNSON Impeller WASHER

*Impelling Sales Features*

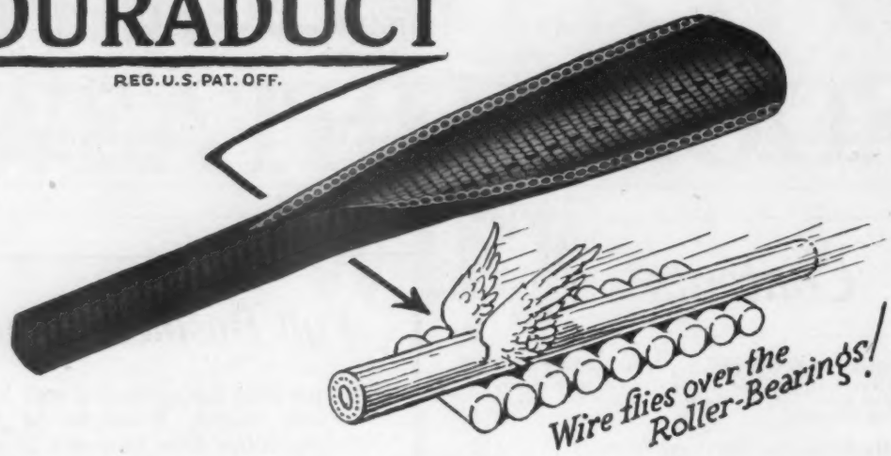
**Water Heater**
**Washing Ability**
**Simplicity**
**Compactness**
**Easy to Clean.**

**Johnson Washer Co.**
**Oakland, California**

**1924 convention of Northern California Johnson Washer dealers—every one a real Johnson booster. "Wear a smile on wash day" has been a slogan of the Johnson Washer for a long time, but Johnson dealers wear smiles every day. Will you be in the next picture?**

# DURADUCT

REG. U. S. PAT. OFF.




## Thousands of Contractors Have Discovered That Wire Slides Through Duraduct with Lightning Speed!

These live-wire contractors are way ahead of their competitors when it comes to doing a good wiring job in the shortest possible time.

You know how it is when fishing a long length of ordinary loom. The waxed braid on the wire slides back, bunches up, clogs the tube; you do a lot of cussing, and finally pull the wire out, cut off the bunch, and start again nursing the wire through the tube.

That's where the user of DURADUCT gets the jump on his competitor. He can fish fifty feet as easily as five; and there's no pulling back the wire to get a fresh start. The roller-bearing wireway takes care of that.

*Made at Pawtucket, R. I. by the*

## TUBULAR WOVEN FABRIC CO.

ALLIED INDUSTRIES, INC., Pacific Coast Representatives

### Individual Initiative versus Socialism

REGARDLESS of what one's ideas may be on the subject of national politics, there can be no question whatever as to the attitude of the Republican party with respect to government ownership. President Coolidge and many distinguished members of his cabinet, including Mr. Hoover, have expressed themselves vigorously and in no uncertain language on this all-important subject. On another page of this issue we present to our readers excerpts from an address delivered by Mr. Hoover on Sept. 29. This address was made over the radio and broadcast from many nationally interconnected stations. Mr. Hoover quotes Senator La Follette as follows: "I am for government ownership of railroads and every other public utility—every one." Truly the action taken by the California Supreme Court denying to the La Follette party a place on the ballot other than under the Socialist designation has isolated the germ, so to speak, and stamped the La Follette campaign as frankly, openly and avowedly socialistic in every sense of the word. Mr. Hoover says, "Either we are to remain on the road of individual initiative, enterprise and opportunity regulated by law, on which American institutions have so far progressed, or we are to turn down the road which leads through nationalization of utilities **to the ultimate absorption into government of all industry and labor.**"

It is the rankest kind of folly for men to shrug their shoulders with indifference at this situation. If perforce they feel that they are exempt, because in California at present only the power companies are being attacked, they should realize that this is simply a stage toward the achievement of the socialist view looking toward, as Mr. Hoover says, "the ultimate absorption into government of all industry and labor." A fire started may be checked by prompt action. Once let the fire of government ownership grow beyond control and the end is destruction of all the forces that have made of the United States the greatest nation in the world.

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### The Commissioner Reverses His Decision

NOW comes the California Railroad Commission which on Oct. 11 denied the application of the Southern California Edison Company for a temporary rate increase to cover extraordinary operating expenses due to the abnormal drought conditions of last winter. As reported in the Journal of Electricity Aug. 15, 1924, the original decision of the commission made Aug. 1 granted the contention of the Southern California Edison Company, in which judgment three commissioners—Brundige, Martin and Whittlesey—concurred, a minority report dissenting having been rendered by Commissioners Seavey and Shore.

Strange to relate, directly following the rendering of this decision Commissioner Whittlesey joined with Commissioners Seavey and Shore in reopening the case. Now Commissioner Whittlesey has reversed himself with the result as noted above. Abstracts from the text of the decision of the commission as set forth on another page in this issue will make interesting reading.

We have felt that the Southern California Edison Company was entitled to favorable action, setting forth that in our opinion the right to regulate carried with it an obligation to protect. There is always room for a difference of opinion. All of us cannot be expected to think alike on questions of this nature. Nevertheless, in view of the history of this case it would seem not unreasonable for Commissioner Whittlesey now to join with Commissioners Brundige and Martin and have a rehearing of the rehearing.

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### Facts Are Revealed in the Appliance Survey

THEORY is one thing and practice is something else. There has been a great deal of discussion within the industry, a great deal of theorizing as to who should sell electrical appliances. There is, however, such a thing as fundamental economic law. We have the old saying that water always seeks its own level, and that forces exerted in certain directions will invariably follow the lines of least resistance.

Our sister publication, the Electrical World, has conducted a nation-wide survey showing who actually is selling electrical appliances in certain large cities in the United States. The Journal of Electricity, following the same course of investigation, has made a similar survey in a number of cities and towns on the Pacific Coast in order to show local conditions and supplement the national data published by the Electrical World. In this issue are presented the results of a study covering seven small cities and towns on the Pacific Coast ranging in size from 3,000 to 25,000 population. These data were presented before a meeting of the Pacific Coast Elec-